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AMERICAN FORESTS

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THE AMERICAN FORESTRY ASSOCIATION

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The American Forestry Association is a citizens' organization for the advancement of intelligent management and use of the country's forests and related resources of soil, water, wildlife and outdoor recreation.

Its educational activities, of which publication of **AMERICAN FORESTS** is one, seek to bring about a better appreciation and handling of these resources, whether publicly or privately owned, in order that they may contribute permanently and in the highest degree to the welfare of the nation and its people.

In addition to publication of two magazines — **AMERICAN FORESTS** and **CONSERVATION**, both designed to keep before the people of the country important conservation questions and issues, the Association carries on educational projects in various fields including forest fire prevention, reforestation, protection and propagation of fish and wildlife, upstream flood control, prevention of soil erosion, preservation of wilderness areas, establishment of national forests and parks, development of forestry by private endeavor and the teaching of conservation in the schools of the country.

The Association is independent. It has no connection with any federal or state governments. It is non-political and non-commercial. All its resources and income are devoted to the advancement of conservation. It has been so operated since its founding in 1875. All citizens interested in forestry and conservation are eligible for membership.

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Member A. B. C.

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READERS' FORUM

A DIFFERENCE OF OPINION

SIR: While I am naturally in fullest accord with the fundamental aims and objectives of The American Forestry Association and therefore glad to subscribe thereto in the capacity of a vice-president of that organization, there has recently arisen a matter which places me in an apparently equivocal position, and concerning which I would like to make myself clear.

In accordance with an official resolution passed by the Board of Directors of The American Forestry Association, our Association has been placed upon record as supporting the Barkley Bill before Congress, rather than the Mundt Bill for elimination of stream pollution. I am not a member of our Board of Directors—my position as Vice-President being, as I understand it, primarily an honorary one only. I am, however, definitely and strongly opposed to the present Barkley Bill and therefore to the action of our Board of Directors in endorsing it. I believe that the Barkley Bill, in its present form, represents an unnecessary expenditure of public funds to no useful or constructive purpose, and that it simply serves to side-track real efforts to control stream pollution, while, at the same time, deceiving the public into believing that Congress is effectively dealing with the problem. Thus, passage of the Barkley Bill may well serve to set back by many years any truly constructive federal action. In my capacity as president of the American Nature Association I have gone on record before Congress in testimony given the Committee as unalterably opposed to the Barkley Bill and in favor of the Mundt Bill. I have expressed my convictions in signed articles appearing in *Nature Magazine*, and I have sponsored a special *Quarterly Bulletin* of the American Nature Association devoted exclusively to support of the amended Mundt Bill. This bulletin has enjoyed wide circulation.

It is regrettable that the leading conservation organizations have not, in this instance, presented a united front. The official position of The American Forestry Association is at odds with that taken both by the Izaak Walton League of America and the American Nature Association. Thank God, this is still a free country and we have a right to differ and say so openly. The principle of Democracy permits us to try to iron out our differences without resort to concentration camps and machine guns. I see no reason to quarrel over differences so long as they are honestly held. I would like to ask, therefore, if you would be willing to publish this letter in *AMERICAN FORESTS*, to the end that the personal opinion of one of your vice-presidents may be made clear of any possible embarrassment. Upholding the aims and objections of The American Forestry Association as I honestly see

them, I cannot join with our Board of Directors in endorsing the Barkley Bill.

With all good wishes for our Association, and in the hope that it, together with other associations and groups sincerely interested in the true conservation of our natural resources, may continue to work together for the compromise of honest differences and the attainment of those fundamental aims which we share.—*Arthur N. Pack*, President, American Nature Association, Abiquiu, New Mexico.

SCOPE OF RESTORATION PLAN

SIR: I read your leading article and editorial on the so-called Forest Restoration Plan with a great deal of interest, especially as you quite evidently visualize some of the dangers in this legislation.

Two considerations make this proposal a serious threat to both private forestry and private enterprise.

Under Section 5 (f) it would permit the Forest Service to log, process, and sell forest products anywhere they operated these leases. This, of course, would be subsidized competition because no charge would be made for administration and management.

Again, under the most favorable conditions, thousands of small owners would become government tenants for periods of 10-40 years. They would be controlled by the amount of labor given them each year—in fact they would become government peons, as many of the debts would never be repaid. Another relief voting block!

The small farmer would have nothing to lose. His taxes and fire protection paid and several hundreds of dollars' worth of employment on his own land each year. His benefits would soon be worth more than the value of his land, and eventually much of the land would go into government ownership.

This proposal would give the Forest Service more political power, more money to spend, and a basis for adding more and more personnel. This, probably, is why they are making such an intensive drive for the passage of these bills. They had a man appear before the Northern Hemlock and Hardwood Association meeting the other day, who told them that the bill was "evolved" by the Northeastern Grange and other agricultural interests. Before that they said the southern lumber industry wanted the bill. Why all this subterfuge?

If small land owners need help in managing their forest lands, and we know that they do need both help and education, why cannot it be given through the organization of co-operatives as is being done in the northeast? We could support provision for county foresters under the extension plan, who could teach owners to do for themselves, rather than have everything done for them.

In other words, I am skeptical of proposals which encourage more and more reliance on the federal government for

things that people could do for themselves.

I seldom write letters of this sort, but this Fulmer bill appears to me to be much broader in scope than many of its sponsors realize.—*C. S. Martin*, Western Pine Association, Portland, Oregon.

MORE ABOUT WILDLIFE IN GOTHAM

SIR: In reply to Mr. Hickey's charges (which were published in the Readers' Forum column of the October number), I would say that from the tone of his letter Mr. Hickey evidently belongs to that group of amateur ornithologists who are interested not so much in furthering the cause of ornithology as attacking some other person's work along that line. Particularly, the writer's. These fellows cannot write themselves—except pile fact upon fact, stupidly—and consequently their only satisfaction is in picking at those who do. They search for a slip or error in books and magazine articles as a pearl diver searches for pearls. If a real mistake is not available, then they seize upon a phrase which can be twisted or misconstrued for their purpose.

If you have noticed in Mr. Hickey's letter, he follows the procedure I have mentioned. He says the articles claim "an ecological niche for larger hawks in the steel, stone, masonry of the metropolis"—which, of course, it does not. The falcons nesting on an apartment house in Brooklyn was an accidental case, and in no way set forth as a regular event. Whether this particular pair of hawks were later proven to be other than peregrines, I do not know—as I never heard it contradicted. But certainly it is not outside the realm of probability that they were peregrines, as this species is reported in New Jersey, Westchester and Long Island, from time to time.

In regard to Mr. Hickey's statement that eagles hi-jacking gulls is "only one step removed from stealing babies," I refer him to *The American Eagle*, by Francis Hobart Herrick, page 112: "The gull mounted rapidly with the eagle close on its heels . . . We have seen, however, that the gull has no more immunity against attack than the rascally crow or the long-suffering osprey." No one would question Dr. Herrick's authority.

And according to Mr. Hickey, "eagles haven't nested on the Palisades since at least the turn of the century." Eagles have always been associated with the Palisades. They are included very frequently in the New York region lists of birds as reported in *Bird Lore*—and at all seasons. Choosing just a few at random, I find the bald eagle listed in March-April, 1939, July-August, 1937, and the Christmas Census, 1936-1939 of the Bronx section of New York, which specifically mentions a fifteen-mile radius of Hudson River Valley.

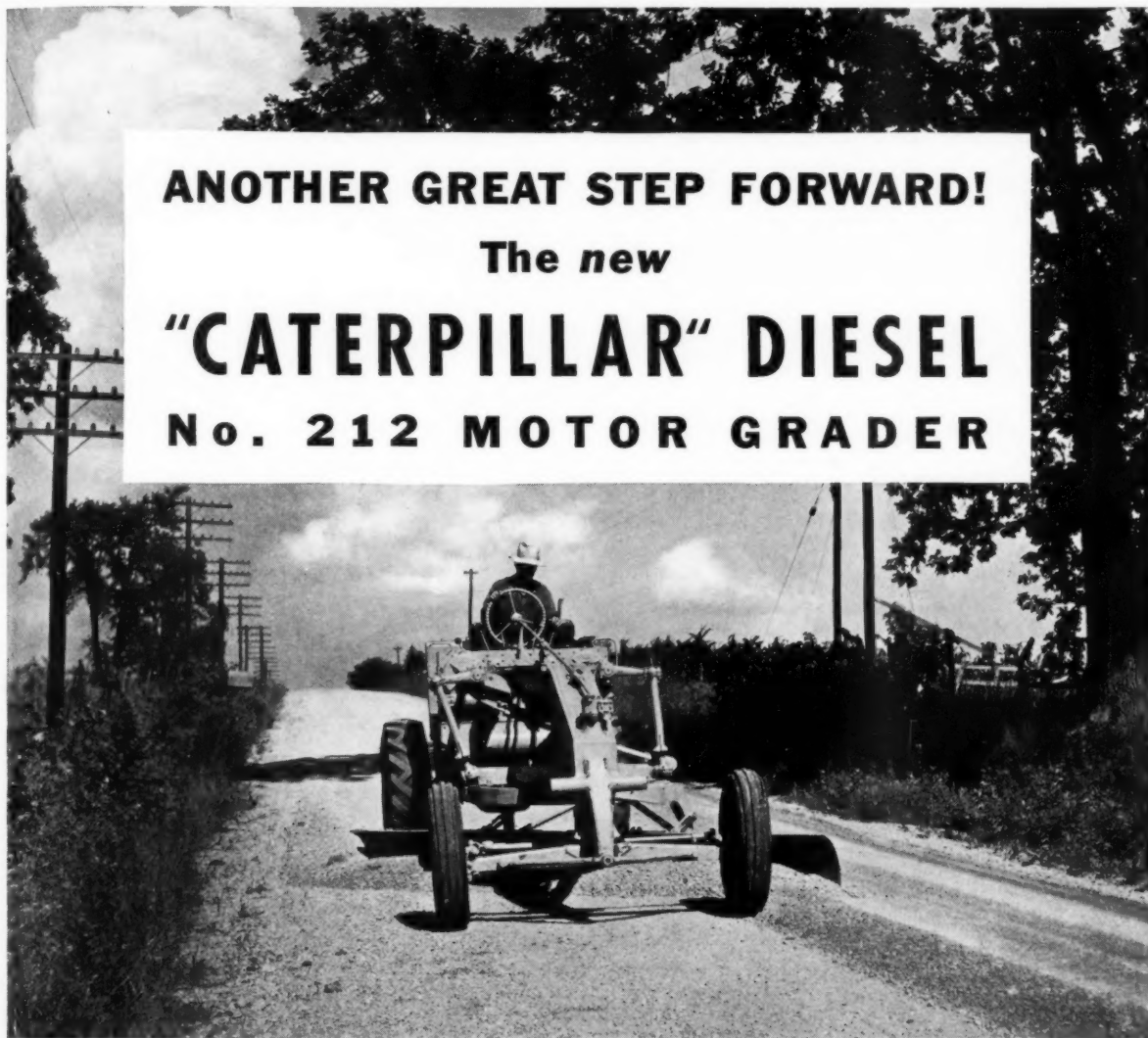
So, eagles are seen hereabouts at all seasons, and they have been reported as nesting on the Palisades. If Mr. Hickey's investigations are carried out in the same spirit as his literary criticism—then I should not think his findings are worth very much.—*Lorine Letcher Butler*, New York City.

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W. R. BROWN

■ William Robinson Brown, well known in forestry and conservation circles in New England, has been general manager of the Woods Department of the Brown Company, at Berlin, New Hampshire, since 1902. Mr. Brown was first elected to the Board as a Director of The American Forestry Association in 1913 and served continuously through 1921, when he resigned. Re-elected in 1930, he served one five-year term and was elected again in 1935 to serve five years. He has been an associate member of the Society of American Foresters since 1921; is a director of the American Pulpwood Association, the Quebec Forest Industries Association, and the Woodland Section of the Canadian Pulp & Paper Association; President since 1911 of the New Hampshire Timberland Owners Association, he has served as Chairman of the Northeastern Forest Research Council since 1924, and Chairman of the New Hampshire Forestry Commission since 1909. During the world war he was a member of the Lumber Committee of the Council of National Defense. He organized in 1917 at Portsmouth, New

OUR DIRECTORS

Hampshire, the first Timberland Fire Insurance Company in the United States, which did a successful business for three years. Together with a former director and President of The American Forestry Association, Ex-Governor Robert P. Bass, he wrote in 1909 the present New Hampshire forestry law, which is still in effect with some changes. With local and Government cooperation, he introduced the first organized fire protection into the Province of Quebec, by forming the St. Maurice Forest Protective Association. Through experiments conducted by the Woods Department of the Brown Company, a method of staining living trees was patented in the United States and Canada. This department also first produced in America, and put on the market, certified seed, which is now standard practice.

The Brown Company was first to engage a private forester in this country—the late Austin Cary—and has since continuously employed foresters of note. Many new products produced from cellulose have come from Brown Company research laboratories: High Alpha, cellate, rayon, nitrating and plastic pulps, wet strength papers and towels, inner soles, conduit pipe, string and yarn.

Mr. Brown has been President of the Arabian Horse Club of America since 1912 and imported and bred many fine Arabians at his Maynesboro Farm up to 1930, and has done much to popularize and encourage the breed in America, particularly as foundation stock for the cavalry. For a long time he served on the United States Remount Board after the world war. His book on the Arabian horse, titled "The Horse of the Desert," was written to show the value of small horses in warfare and particularly the Arabian horse, and carries an introduction by Major General Harbord and another by the late Professor Henry Fairchild Osborn. It is a rather complete description of the history, habitat, peculiarities, records and usefulness of this interesting breed, and can be found in many libraries and colleges.

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The EDITOR'S LOG

A RECENT Gallup poll on the question, "Should the CCC camps be permitted to give military training to the young men who want it?" yielded an answer that no doubt was surprising to many. Of those to whom the question was put, ninety per cent said "yes" and only ten per cent said "no." Those in

the "yes" group appeared to be influenced primarily by the values they place upon physical and disciplinary training. Less than twenty-five per cent of the "yes" group based their answer on the specific value of military training in preparedness for war.

It would be interesting to know how the CCC boys themselves feel about it. Why not a Gallup poll of the enrollees?

* * * * *

Unsuccessful in moving the Forest Service, lock, stock and barrel, over into his own department by legislative means, Secretary Ickes recently sought to capture the head of that Service by diplomatic means. He offered F. A. Silcox, Chief Forester, the position of Under Secretary of the Interior Department, vacated by Harry Slattery to head Secretary Wallace's new prodigal, the Rural Electrification Administration. Mr. Silcox politely but firmly declined the offer. Great firmness on his part must have been called for if reports are correct that the White House brought pressure to bear for his acceptance and transfer.

* * * * *

World thought today is focused on war in Europe. But there is war in these United States. There is always war somewhere in America—every day of the year—and the men who are waging it should not be forgotten. Their's is a different kind of war from that now burning the souls and bodies of men, women and children abroad. The difference was well stated the other day by Ernie Pyle, the roving reporter, after viewing the battle movements of fighting divisions locked in conflict with a forest fire in a western national forest. Wrote Reporter Pyle: "Every night all over the wooded and mountainous West, thousands of cold, weary, smoke-choked men are at war, and the biggest thrill of all to me is that the men in this war are all on one side and not killing each other."

* * * * *

Gone from Wisconsin is "the lure of that unknown lake"! It has been legendary in the Badger state, according to the Conservation Commission, "that here and there in Wisconsin you can find a native, most often an Indian, who knows a little lake back in the woods that is unknown or has never been visited." But now the unknown lake is a myth because the land economic division of the Wisconsin State Planning Board has just completed a lake inventory and located every last lake in the state. Incidentally, the inventory reveals that the state has not as many lakes as its boosters have claimed. Instead of 7,000 as advertised, the actual count shows 6,138.

"We are pretty ashamed of ourselves for misleading our vacationists for so long," confesses Joe Alexander, superintendent of the state's recreational publicity bureau. "Instead of 98.59 lakes per average county, we have only eighty-six lakes per county, not adding in the thirty-two that are left over." Not content with tracking down the last lake, the state is now in search of its "lost" rivers with a survey and final count of all streams within the boundary of the state.

Orin Foster
Editor.



The huge moon hung behind the black silhouetted outline of the ridge top, and the wind whipped through the dark, barren branches of the trees, carrying the call of the wilderness, — the call of beauty and mystery — beckoning to things unknown

NOT OF COMMON THINGS

By

CHARLES NEWTON ELLIOTT

TONIGHT the moon was huge and round and one shade darker than pearl. The stars overhead were scintillating, brilliant lights against the sharp sweep of the heavens. Beyond the black, silhouetted outline of the ridge top, Thunder Valley seemed empty and bottomless, and so very far away.

At dusk the air had been still and cold enough to jell. The wind that came on the heels of darkness might have been the frosty breath of Boreas himself, whipping through the branches of the trees. The frozen trail, with its clumps of gourd-dry leaves, crackled underfoot as we moved laboriously toward the summit of Panther Gap.

We were near the junction of the West Fork Trail when Dave came to an abrupt halt. "Listen!"

I strained the two cerebral chunks of ice which lay close under my scalp, but the only sound was the unearthly din of the wind at that high altitude.

"They've come up the hollow on yon side of the ridge," Dave shouted.

Faintly then to my ears came the chorus of running hounds. It made me forget my misery for a moment. It carried me back to midnight, when Dave's dogs had jumped a huge raccoon at the junction of Stoney and Mulberry Creeks. Dave said it was a raccoon. He knew by the sound of old Bell's clarion voice. The 'coon ring was there, unmistakable.

"They'll tree at the head of the hollow."

Dave left the trail, working his way up the mountain side, through the overgrown rocks. I followed as best I could, exploring for handholds with my frost-bitten fingers, losing what I had gained when we swung downward again to avoid a mammoth cliff. At the ridge crest, we stood for a moment in the flowing, icy blackness, and listened. The dogs were close — and excited. The big raccoon was running to make the ridge. No doubt of that. And what a race he was giving those hounds!

We plunged forward again, downhill this time, risking life and limb over rocks and frozen ground. Low growing branches stung my face and I fell an untold number of times. But we reached the big hollow above Mulberry simultaneously with the dogs. The raccoon had surrendered and treed in a massive, hollow poplar. No

trouble to get him then. While the dogs and I sat in awkward positions on the frozen leaves and earth, Dave smoked the animal out of the tree cavity and to the topmost branches. There the powerful beam of his flashlight held him until Robert, another of the mountain boys who had followed the dogs almost the length of the chase, could climb the tree and shake him loose. The raccoon did not bounce more than once before the dogs were upon him. Dave threw him into the burlap sack he had been using all evening as a scarf.

When we arrived at the cabin once more, I turned in. I should have been sleepy, but somehow sleep evaded my most earnest pursuit. So I lay under the warm blankets, thinking back across those hours of windy darkness

when the ridges stood bleak and bald against the sky, of how the wind slashed through the barren branches, of the brilliance of the stars.

Somehow, to me those things were the real meaning of the night's hunt. It was not the taking of an animal for its fur or meat, it was not the capture which quickened my pulse and made the blood pound in my throat . . . not food for my body, but food for my soul . . . palatable dishes of black wind and black rocks and an earth standing on end . . . delicious dishes served up on a glistening platter of the moon, the heavens and the stars.

That night as I lay there, staring at the flickering interior of my cabin,

I began to wonder about the long number of years, throughout which I had made pilgrimages into the wilderness. I was court-martialled by my heart that night and judged guilty. Through the years I had been dishonest when I said that I was going after trout or quail, or to kick a rabbit out of the brush. It was not the sliding of a trout into my creel, or matching my marksmanship against a gray, whistling bundle of feathers that traveled with arrow speed. It was something else, seldom recognized, indescribable, satisfying, that I sought.

I began to wonder about other sportsmen I had known. The autumn before I had hunted with a man by the name of Jack Escoe. Jack could do tricks with a rifle. I've seen a marble thrown into the air disappear when he pressed the trigger. A few times in open woods I have seen him bag quail with his "twenty-two".





On that late autumn morning, the leaves were gone from the branches and lay in a colorful blanket against the hillsides. We had breakfast an hour before the first drab light of morning filtered into the trees. Gray dawn found us in a virgin hardwood forest of steep hillsides and ravines. Hickory trees and squirrels were plentiful, and for many weeks before season opened, we had been planning this hunt.

I left Jack in a thick grove of hickories by the creek.

Crossing the stream, I went almost half a mile below him on the opposite hillside, to a large shell-bark hickory where the squirrels had been cutting, and sat down to wait.

Another morning of that same quality has never been created. The air was sharp and sweet and clean at dawn. Suddenly beyond the hill the heavens blazed a brilliant red and the rose and amber of that reflected light softened every black shadow of the night just gone.

I never have seen so many squirrels. Shortly after the coming of light, a large, particularly saucy fellow scampered down the tree in front of me and pulled himself inquisitively up to watch me out of bright, black eyes. I placed my hands on my rifle and then changed my mind. To kill him . . . to shatter the stillness of the morning in that dimly lighted cathedral, would be sacrilegious. So I settled back comfortably and waited for Jack to collect his limit.

Soon the sun hit the ridge top beyond the creek, throwing broad beams of light into the woods. With the coming of the sun came the wind, moving gently through the forest, stirring the dead leaves, breathing into the pines along the creek.

At nine o'clock I walked back up the ravine to where I had left Jack. He heard me coming through the dry leaves and rose to stretch the stiffness from his muscles.

"What luck?" I asked, though I already knew. He had not fired his gun.

Jack looked at me with a naive expression.

"I haven't seen a squirrel," he said.

"That's odd," I replied. "Neither have I."

I understood and I knew he did. It was something more than squirrels which had lured us into the wilderness of virgin hardwood forests, something not of ma-



M. S. Benedict

Lost in this mountain wilderness in Idaho, the author wandered for two days—alone through steep canyons and upthrust crags with no food except a Fool Hen—an unforgettable experience

terial things. We would have killed something other than squirrels had we bagged any of the furry creatures that morning.

I think that one who has never stood in the black, windy darkness before dawn, numb with cold, and then felt the first warm ray of the sun touch his cheek to flood his body with a gradually expanding glow, to raise his failing spirit, has missed something in life. One who has never been lost in the wilderness for days, without food, sleeping at night by fires that only by the most arduous coaxing burned at all, does not appreciate good food, and has never seen the real beauty in a mere footpath through the wilderness. I am convinced that one has to experience the hardships of life, to taste the bitter and moth-eaten portion of existence, before beauty and sweetness and satisfaction may be well understood.

Those wilderness trips I remember most vividly are those which were almost crowned with disaster. Once for two days I wandered through a mountain wilderness in Idaho, without the slightest idea of my location. I had lost my compass and sodden clouds hung close on the bosom of the land. Expert woodsmen say that moss grows on the north bark of a tree trunk. I say . . . from experience . . . that it grows on all sides of the tree. I was not certain which slope of the mountain range I was on. I did know that in one valley I would find a Forest Service road that led to an isolated ranger station, and that on the other side of the

range I would walk three hundred miles to civilization. It was a chance I had to take, or remain in that wilderness until a coyote chewed off my slowly disintegrating ears. I shall never be able to explain my feelings during those days. I had a queer, sinky feeling that I had chosen the wrong slope of the divide. There was no

food except a Fool Hen I killed with a stick. Spruce thickets so thick that only with difficulty could I push my way through them. Logs and windfalls to be traversed with heart-breaking labor. Fires at night out of wet wood, that produced too little heat for my exhausted muscles.

Do you think I have forgotten that trip? Or those thickets of spruce, or that Rocky Mountain Creek bottom, sometimes boulder strewn, sometimes flowing through canyons so rocky, so rough, so steep that I climbed miles to circumnavigate them, and find the stream again. Do you think I have forgotten those two murky nights without food, where one hour without a fire would have closed the doors on my sentence to this mundane prison? Have I forgotten my first glimpse of the road, the ranger station, or the meal old Tom prepared for me in his cabin? Afterwards I learned that particular section of Idaho like a book,

but no single minute of the first trip through it has ever been forgotten. Not one. If there is any man or woman, or boy or girl, who thinks that they hunt and fish purely for the love of killing, I should like to meet them. I have a few questions to ask.



Lester Farnum

CHOICE

By Berniece L. Graham

There is no better place I know for dying
Than in the hills where kindly people are;
Than near a mountain top where clouds are flying
Wind-swept against a glowing northern star.
There is no better spot I know for ending
The longest day, than in some sheltered place,
With body pressed beneath white birches bending,-
The pungent breath of earth against my face.



The coyote is a Gothic type—all in points,—nose, eyes, ears, paws, teeth and even disposition

THE COYOTE MARCHES ON

Cunning, crafty and adaptable, he is holding his own and extending his range despite eternal warfare against him

By STANLEY P. YOUNG

Photographs by the Biological Survey

THE HIGH, staccato yip-yap and the prolonged howling of the coyote thrill the newcomer to the far West, especially one who hears it for the first time. For some inexplicable reason, it leaves a never-to-be-forgotten impression. Generally silent during the day, coyotes may be heard at any time between sunset and sunrise. The breaking of dawn seems to be the favorite "yip-yap" period. When several join in, the mournful medley is indescribable.

In architecture the coyote is of the Gothic type — all in points; it has a pointed nose, pointed eyes, pointed ears, pointed paws, pointed teeth, and finally a pointed disposition. Although Lewis and Clark gave the first good description of the coyote, Thomas Say, who might be called the Father of American Zoology, was the first to add the specific name to this interesting prairie mammal with which he became acquainted during Long's Expedition to the Rocky Mountains in 1823. The type locality from which Say named and further described the coyote was near the present town of Blair, Washington County, Nebraska. Since that time to the present, eighteen subspecies of the coyote have been described ranging in size from the diminutive coyote of the South-western deserts to those of greater size found in

the higher mountainous elevations. Say named this unique and distinctly North American mammal, *Canis latrans*, meaning the "dog robber," and with this sobriquet the coyote has, through the centuries, lived up to its name. A Chinese cook, employed by the famous Dr. C. Hart Merriam's Death Valley Expedition of the early nineties, persisted in calling the coyote by its scientific appellation, but the closest he came to the proper enunciation was "Chinese lanterns." The name "coyote" comes to us from the Spaniards — a picturesque modification of the Aztec word "coyotl."

The coyote is by far the most successful of all the larger North American predators in contending with



The prolonged howling of a single adult coyote may sound like the concert of at least a dozen

advancing civilization. In contrast to the North American wolf, which is being gradually shoved back to the wilder mountain recesses and has been eliminated from much of its former domain because of agricultural and livestock development and destruction of habitat, the coyote, judging by present-day conditions, seems to be holding its own, adapting itself to constantly changing conditions, and spreading from the plains section to the high mountains. And this in spite of continual warfare against it.

Its invasion of our western mountain country has come in part because of the destruction of much of its food supply in the plains country, causing it to travel farther in obtaining food, and the introduction of livestock into the grazing lands of national forests and public domain in the last half century, coupled with logging and clearing of land for farming purposes. There are still many old-time sheep producers who can recall looking forward to reaching the high forest ranges of the West, because at the time it meant freedom while grazing from coyote depredations. This animal was simply not to be found at that period on many of the high ranges. But it is a different story today, for the coyote is found above timberline on many forest ranges, and may rear its young at elevations of 10,000 to 11,000 feet above sea level.

Migration studies of this mammal, by ear tagging of the young as well as of the older animals, are bringing to light some interesting information. During the year 1932, twenty-four coyotes were ear tagged in one experiment and released in the locality where captured. According to the seven returns received, four coyotes were caught within five months in the immediate vicinity of the place where tagged; two were taken thirteen months after tagging, one ten miles away, the other 100 miles; and one was taken eight months after release, fifty-five miles distant as the crow flies. In this experiment, the coyotes were tagged and released in localities where their movements would not be influenced by the shifting of livestock between the lower and the higher ranges.

In another experiment carried on in Arizona during the spring of 1918, seven coyotes were marked and released on the southern desert winter ranges used for sheep during early February. Five of these coyotes were trapped in September of that year a short distance from the south rim of the Grand Canyon. These animals had traveled more than 250 miles after being released approximately eight months previously. The movements of these coyotes, however, were influenced by the shifting of livestock, in this case sheep. The release was made on the sheep drive-ways that began south of Phoenix and continued in those days to the summer ranges of the old Tusayan National Forest, now part of the Prescott and Coconino National Forests, south of the Grand Canyon of the Colorado. Thus studies indicate that the coyote in its northern range has a migratory movement southward in winter and northward in spring, probably influenced to some extent by the limited food supply of the northern wilds due to the hibernation of rodents, and by the severity of the seasons.

Some idea of the degree to which the coyote has extended its range may be gleaned from the following: Since 1907, it has spread across the Willamette Valley of Oregon and over the Coast Range to the shores of the Pacific. Last summer, while visiting my boyhood and early-manhood bailiwick at the mouth of



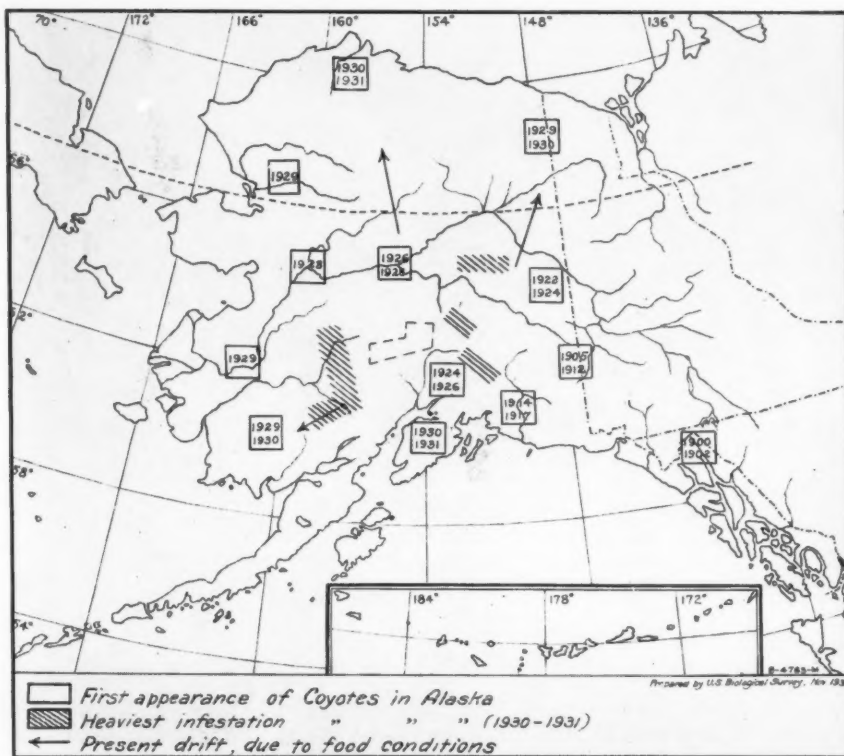
Sheep on the White River National Forest with throat nearly severed by coyote biting



The nest of a mallard duck, with eggs despoiled by coyotes



Mouth of a den showing remains of three lambs, with skulls emptied of brains by coyotes



The Deiming Ranch in Colorado suffered severe depredations, and eight coyote dens were found surrounding it—the pups being fed by their parents the young poultry and stock from the ranch! These are the sleeping inmates of a den that held ten pups—their father keeping guard

the Columbia River, I was greatly surprised to hear the yaps of a coyote on Tillamook Head, a promontory extending approximately nine miles into the Pacific Ocean, near Seaside, Oregon. On investigation I learned that these animals had also invaded the Nehalem Valley, a short distance east of Seaside, where they were giving trouble to sheep introduced into the valley to graze on the logged off lands. In 1907, the naturalist would have had to travel more than 200 miles from that section to make any contact with the coyote. It simply was not to be found in the thickly forested area of

northwestern Oregon. I found, too, that it is gradually extending its range on the north, coming down the north bank of the Columbia River on the Washington side, so that eventually it may reach the extreme southwestern tip of that State.

Within the last twelve years, coyotes, for the first time so far as is known, have made their appearance in Alabama, Tennessee, North Carolina, Florida, New York, Maryland, Pennsylvania, New Jersey, Virginia, Mississippi, and Maine. How they entered these States in most instances is still a moot question. In Alabama, however, it is definitely known that twenty-four coyote pups were released in 1924 in Barbour County, near the southeastern corner of the State — a mistake on the part of the sportsmen of that section who thought they were releasing fox puppies to replenish the supply of foxes for the time-honored sport of coursing. By 1929 these coyotes made their presence forcefully known by depredations on the young calves, hogs, and poultry of the farmers of the vicinity. In other States, some of the coyote invasion resulted from auto tourists returning to their eastern homes with young coyotes obtained in the West for use as pets, which later escaped from their eastern owners. In several instances coyotes have been trapped in these eastern States with collars still

attached to their necks. Some of these escaped coyote pets have bred with farmers' dogs and whelped cross-breeds. Recent instances of such occurrences have been recorded from Virginia and New Jersey. One of these crosses, taken alive in southern Virginia, is now in the National Zoological Park, Washington, D. C.

It is to Alaska that we must turn for one of the most spectacular and interesting examples of the coyote's ability to extend its range under modern conditions. The accompanying map of that wonderful territory is self-explanatory, though an

(Continuing on page 574)

AMERICAN FORESTS

OLE SWAN SVENSEN SETTLES DOWN

A descriptive narrative of selective logging as practiced by a forestry-minded lumber company in Wisconsin.

By W. S. BROMLEY

"I MUST be getting old," Swan Svensen muttered to himself as he trudged wearily up the last hill that he must cover to reach the town of Goodman, Wisconsin. Nineteen miles had he walked this cold, windy day, with all he owned in a pack on his back. Swan had been one of the best lumberjacks in Minnesota when he was in his prime. But now the white strands of hair mixed freely with gray and black, and made some woods bosses look twice before they hired him.

Reaching the top of the hill, Swan paused to catch his wind and rest his aching legs. While he rested he scanned the scene before him. He noted the well-planned streets with planted trees on both sides, concrete sidewalks, the large school building, and the church. Looking sharply he was struck by the fact that all the buildings were painted. "Hmph—some things funny about dis here town of Gudeman," he said half aloud; "if no mill var here I would tank it var no sawmill town—it looks too gude an clean."

That night after supper at the company lodging house he felt the need of a "bracer." "Time goes and nawthin

drank" he said as he asked where he would find the bar. The clerk advised that there was only one in town and that was across the street in the Community Hall. When he reached the bar he asked for a pint of Lone Jack whiskey, and was shocked to hear the bartender tell him, "Sorry, ole timer, but nothing stronger than beer is sold in this town." Contenting himself with the beer, Swan thought again that the town surely was different from those he had been used to. He didn't like this "no liquor" business though and decided he would clear out pronto if he didn't get work.

At the office of the lumber company the next morning Swan learned that they didn't need any lumberjacks. He was told that most of the "jacks" lived in town or on



Goodman, Wisconsin—a town destined to become a prosperous and happy community permanently, because of the sustained yield policy practiced by a big lumber company as opposed to the "cut out and get out" policy of past years, which left many ghost towns throughout the Lake States



A forester marks trees for cutting in a Goodman forest



Bucking a large tree in this selective logging operation



The "crop" of selected trees is loaded on a truck

farms nearby all year round, were married and had homes of their own. He could not understand why this town ran things this way. Most companies were glad to get an "old hand" at the logging game with the strong arms that he had. Well, he should worry; he had enough cash to get to the next job. "A town without likker var no place for a loomber yak anyway—even if it var nice fer to luke at," mumbled Swan as he went out of the office.

"Swan" a jack yelled, "what are you doing here? I haven't seen you since we drove white pine down the Rainey River in Minnesota."

"Why Paeder McClintock, yew ole horsewhipper, due yew live in dis har tame town?" responded Swan. Gripping each other's gnarled hands with strength that few men could stand, they glared at each other with open pleasure. Fifteen years had passed since the pine-cutting, log-driving days in northern Minnesota. One of the biggest mills in the state was fed by the logs they and hundreds of other jacks mowed down with such grim haste. Terrible fires had completed the devastation of the forests. Mushroom towns plastered with saloons had swallowed most of the lumberjacks' hard-earned checks. They had been happy days none-the-less, and the brawls and sprees that these two men had led helped to make history for the camps of their day.

Swan told his old pal that he had just been turned down and he needed a "yob" pretty badly. "Ah, they're crazy," Pete said when he heard this, "I need a good Swede to ride the other end of me saw. Just wait a minute, I'll fix it up."

Five minutes later he came out of the office and grabbed Swan by the arm. "Come on pard, it's all set." Along with several other men they climbed on a little railroad car and sped out to the woods. Very soon Swan was swinging his double-bitted ax into the hole of an immense sugar maple tree. "Hard stuff," he said as he gritted his teeth and the sweat rolled down his cheeks with each stroke of his ax. "Yep, it's tough allright, but the pay is OK," said Pete watching him, "But don't take it too hard. This is first day out, you know." Swan rested and said "Ya, I know, and I tank I feel a little old maybe; we're young yaks no more Pete."

The first tree was felled and bucked, then Pete touched up his saw with a file while Swan looked around for the next big tree. He spotted one and began chopping the undercut. Glancing up from his saw Pete saw what Swan was doing and yelled at once, "My God, Svenson, don't cut that one." "Why not?" Swan inquired.

"I should of told you, I guess; we can only cut trees that are marked with a bark blaze," Pete exclaimed.

"Yumpin yiminy, dat var a funny one," roared Swan. "Who marks the trees and fur wat?"

Pete explained then that the company forester marked the trees to be cut, and usually picked only the biggest and oldest ones. The most healthy trees were left on the ground for the next cut, fifteen to twenty years in the future.

Swan was amazed. "Do you mean they leave a tree as var so big like dis har von?" "Sure they do," Pete replied. "They've got to leave some big ones this time so they are sure to get some on the next cut. Fact is, they could cut these northern hardwoods like this forever, and get crops from

them every twenty years. That's a lot different from our old pine clear cutting, isn't it?"

"It shure iss, but Pete I don't get you. Comin back har fur more crop var more like farmin than timber cutting to me. Why do the company cut like dis?" questioned Swan.

"It's called selective logging but I'll tell you more about it tomorrow. Tomorrow's a holiday and I'll take you through the mill," Pete replied as the two men began the hard grind of sawing down a marked tree.

Swan kept his eyes open the rest of that day. He noted in particular the type of trees marked. Between laborious pulls at the saw he watched the teams bunch the saw-logs, and the tractors pull them to the railroad. He could see the average-size log being loaded was much larger than it had been on the last hardwood job on which he had worked. He was puzzled, and laughed to see the men include in the load parts of tops, crooked logs and even cull logs. They seemed to know what they were doing though and he hesitated to ask Pete about these things. His pride was hurt somewhat when he thought how little he knew of this selective logging Pete talked about.

As the sun dropped into the boughs of the big trees in the west, Swan and Pete picked up their tools and crunched along the snowy path to the railroad car. On the way back to town the car raced through the long shadows of a beautiful stand of timber. "Iss var fine trees har" Swan yelled to Pete as frosty air whipped about them. "Shure is, we select cut that ten years ago," roared Pete in reply. The icy blasts of air that struck when they hit a stretch of clearcut timber discouraged further conversation, but Pete managed to add: "The boss clear cut that years ago before he learned he could make as much money select cuttin."

That night Pete took his old friend to his home for a typical lumberjack's meal. They all ate with the enthusiasm and pleasure that comes only to those who work hard in the out-of-doors. The warm glow of contentment that followed their meal stirred memories of days gone by. Pete's two kids sat on a stool by the fireplace and listened with wide-eyed alertness. Before they were hustled off to bed Swan asked the boys how they liked school. It was all right, they said, but the thing they liked most was the new gymnasium which was being built next to the school. When it was all finished they could play basketball, see plays, and maybe some "movies."

Pete walked back with Swan to his lodging house. It had been a hard day for Swan, and now he had a queer feeling that Pete had something which he could never attain. "Pete," he said, "It shure make me glad to see how happy you var here. I used to tink you nor me would ever settle down. But har you are and I dunt mind saying you got a fine wife, a gude home and nice kids."

"Yes, Swan," Pete agreed, "I feel as though I've been plenty lucky. And I'm going to try to give those kids a little better break than you and me had with life." As they parted for the night Swan thanked him for the job and the meal and arranged to go through the mill the next morning.

It didn't take long for for these two old timers to go through the mill. (Continuing on page 573)

NOVEMBER, 1939



The impressive town theatre and community hall



School buildings of which any town could be proud



The small dimension mill insures no waste—everything is used



It isn't easy to hold a full grown quail. This chap is about two years old, and a tight grip of his legs is required to hold him

QUAIL TO ORDER

From Incubator to Shipping Crate, Bobwhite
Is Carefully Raised for the Stocking
of Game Preserves

By

AUSTIN C. LESCARBOURA

THE QUAIL, otherwise known as Bobwhite, is now raising a large and ever-growing family. Many quail raisers scattered about the country are supplying these birds for the stocking of game preserves.

That quail can be raised at all is a tribute to man's ingenuity and patience because from the moment a quail is born, its life expectancy is a "touch and go" gamble.

Some six thousand Bobwhites, according to the latest census, live happily on a quail farm in Pennsylvania which the writer recently visited. It is one of numerous quail farms now operating successfully in various sections of the country. Each quailman, particularly the pioneers in the business, has his own technique, developed through years of experience. Of course, all domestic quail raising starts with the egg, or, as in the case of that famous chicken riddle, with the quail hen, according to your point of view. At any rate, a pair of birds are paired off for the purpose of securing fertile eggs. In special cages or pens arranged in orderly rows in the spacious yard of the quail farm mentioned, there are some 150 pair of layers constantly eating, drinking, and laying eggs.

And here at least is one place where a sit-down strike is not tolerated. The quailman keeps tabs on the eggs produced by his layers. He tells us, for instance, that seventeen of his quail hens have laid better than 100 eggs each during the laying

season, while the record-holder has scored 147 eggs in five months, which means one egg a day at least.

The eggs—about the size of a quarter—are gathered once a week. They are placed in a special electric incubator, which holds between 2,200 and 2,400 eggs at a time. At the end of 19 days, the eggs are transferred to a special hatcher wherein the heat and humidity are adjusted for quick hatching. In three days the tiny occupants peck their way through the egg shells and look out upon a very friendly sort of world.

The chicks are little more than an inch in diameter. But they are about the liveliest and tamest little things



Holding pens on the quail farm. Here the birds are kept until ordered for shipment

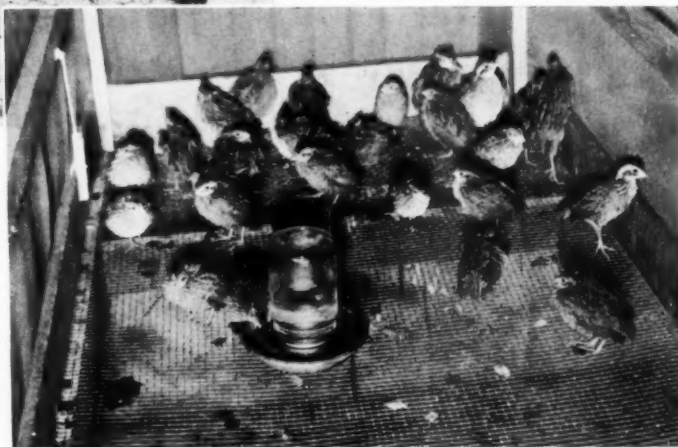
imaginable. In fact, if one's hand is placed among them, they rush up and start pecking away at one's finger nails and especially at a shiny ring. Despite their wild ancestry, these tiny quail are quite without fear—but not for long.

The baby quail are now placed in the first room of the brooder house, the temperature of which is about 100 degrees. Thermostatic regulation maintains that temperature within a degree or two either way. The entire room, with its dozen cages or pens containing the birds, thus becomes the brooder. By having the entire room serve as a brooder, the birds are always kept warm. They remain in the first room for one week and then progress into a second brooder room in which the temperature is five degrees lower. The wire pens, birds and all, are shifted bodily, but not before the new room has



Baby quail — one day old — and about the size of a quarter. Their pen is in the first room of the brooder house, where the temperature is close to 100 degrees. They eat and drink as soon as hatched

The babies in the brooder house about three weeks later. Already their native characteristic of shyness has become quite apparent



From the brooder house the birds, now considerably grown, are transferred to the outside or holding pens. If the weather is quite cold, the birds may be kept inside beyond the usual six weeks' period, even up to ten weeks if deemed necessary. They are actually ready to be shipped in nine or ten weeks if raised in the summer. However, the demand fluctuates considerably, and many birds have to be kept for months. The market peak is usually high in March, which means that the majority of the birds have been kept through the preceding winter. It takes about a year and a half for quail to reach full size, but they can be shipped when only two months old.

Now of course, the quailman doesn't particularly relish the idea of keeping so many birds on hand. His charges are pretty ravenous eaters and keep him busy with filling feed pails and water buckets. The birds are fed twice a day, the menu comprising a special grain and mash mixture with something like nine different grains and about fourteen different ingredients in all. The feed trays and water troughs are thoroughly cleaned and sterilized twice a day, before each filling.

And so life goes busily on the quail farm. From the hundreds of pens and cages comes the characteristic Bobwhite call and other bird talk, in a constant chatter from morning till night. But occasionally dead silence characterizes the whole colony.

been thoroughly sprayed with disinfectant. Too many precautions cannot be taken to prevent possible diseases. In fact, each room is sprayed once a day to kill whatever flies may have gotten in despite the screens. Each room holds twelve pens. The successive lots of quail, born a week apart, travel week by week through the rooms of the brooder house.

From the second room the pens are shifted to the third room, and on to the fourth, fifth and sixth, each time with a five-degree drop in temperature. And each time the receiving room has been thoroughly cleaned and sprayed. In the last room, the temperature is down to that of outdoors, and the birds, now six weeks old, are "hardened" for their introduction to the outdoor world.

Not a bird stirs. It is as though every bird had turned to stone. And the reason is the proximity of a hawk. Quail are in deathly fear of any kind of hawk. They can spot this mortal enemy long before man can. One quail immediately gives the characteristic warning cry. That cry will be relayed from pen to pen. And each bird stops in its tracks, not to move again until the hawk has gone out of sight. Even though raised in the protected atmosphere of the quail farm, these birds still know by instinct their hereditary enemy.

Otherwise the birds are reasonably tame. As they grow older, of course, they become less and less so. Yet they do not mind the attendants going about the pens as they soon become

(Continuing on page 566)

CONSERVATION OVER THE DAM

Can Timber, Wildlife and Man Prosper Together
in the New Land Pattern Being Cut in Coastal
South Carolina by the Santee-Cooper Project?

By ERLE KAUFFMAN

SOMETIME early in 1941, if the \$40,000,000 Santee-Cooper hydro-electric and navigation project in South Carolina progresses on schedule, the great crest gates of a mammoth earth dam near Wilson's Landing will slide into position and the muddy waters of the famed Santee River will back up over a valley rich in resource and tradition. Simultaneously, in nearby Pinopolis basin, another great earth dam will make ready to hold back the water diverted to it by the larger Santee structure. When these waters reach their eventual shore line two huge reservoirs will have been created, a vast hydro-electric and navigation unit set in motion, and, it is prophesied by the project sponsors, a large-scale industrial development will take place to bring needed relief to a region under the yoke of a failing agriculture.

But at the same time these waters will have submerged an area on which is growing today approximately two per cent of the present hardwood stand, over sawlog size, in coastal South Carolina—204,000,000 board feet of timber, of which 132,000,000 feet is estimated to be the finest stand of virgin hardwood and cypress in the South. And while the timber areas are being flooded, just the opposite will be taking place in the great delta country below the Santee dam, where exists today not only a veritable paradise for wildlife, both indigenous and migratory, but also the Cape Romain Bird Sanctuary of the federal Biological Survey. The flow of fresh water into this low coastal region will be reduced to a degree where wildlife environment, particularly that of waterfowl, will be affected. And not to be overlooked is the plight of from 2,500 to 3,000 people whose homes and plantations fall within the valley areas to be converted into huge lakes.

Because of these factors, and also because of shadows cast by a long and somewhat clouded political history, the Santee-Cooper project, the largest multi-purpose development ever to be undertaken in the Southeast, has become one of the most hotly debated issues the conservation world has known in recent years. Some see in it the sacrifice of a resource treasureland to gain an end, be it economic, social, or political, that is neither needed nor desired; others see only a conservation concept involved—a concept defining the delicate values of timber, wildlife and man prospering together.

All of this, however, was revealed in the October issue of *AMERICAN FORESTS*, in which the first of these two articles appeared. In the same issue the broad objectives of the project were discussed, the aim being to es-

ablish a factual basis from which to explore the conservation issues involved. Briefly, it was brought out that the Santee-Cooper project is no mere proposal, that it is a reality, a going concern holding title to thousands of acres of land, on which one of the two proposed dams is actually under construction. It was further disclosed that, despite contentions to the contrary, the weight of evidence as found by this observer points to a need for industrial expansion in coastal South Carolina to restore to a profitable economy a region depressed by a failing agriculture—and that this expansion may reasonably be expected when abundant and cheap power is made available by the dammed waters of the Santee. Furthermore, it was found that the engineering phases of the project held impracticable by some critics appear, in the judgment of reliable authorities, to be entirely feasible.

With these findings in mind, the conservation problems created by the Santee-Cooper project, to restate them, appear to this observer to line up as follows: First, can the great virgin forest of hardwood and cypress, as well as valuable second-growth pine and hardwood, be salvaged before the area is flooded? And, if salvage is attempted, what effect will such operations have on the southern hardwood industry? Second, what effect will the removal from production of more than 100,000 acres of hardwood growing land have on forestry and the forest industries in the state? Third, what can be done to compensate the region for the destruction of wildlife environment resulting from the reduced flow of water below the Santee dam? And, fourth, what can be done to compensate the hundreds of landowners in the areas to be flooded for the loss of home and property?

Before the first of these problems can be explored, it is necessary to take stock of the timber and the timber growing area involved. As previously stated, the South Carolina Public Service Authority, the state agency under which the Santee-Cooper project is being developed, will acquire about 165,000 acres of land, approximately three-fourths of which, or 119,000 acres, is timber producing. According to official estimates, approximately twenty per cent of the forest area, or 19,000 acres, is stocked with old growth hardwood and cypress—a virgin stand unequalled in the entire South. The remaining 100,000 acres are classified as cutover lands, with scattered areas of merchantable second growth timber.

Prior to the official joint cruise made for the Authority and the land and timber owners involved, the volume of timber in this area was variously estimated

at from 200,000,000 board feet to 400,000,000 feet. The official cruise revealed that the minimum figure was approximately correct, that there were 204,000,000 board feet of timber in the areas to be cleared and flooded; 189,000,000 feet in the upper or Santee basin, including the virgin stand, and 15,000,000 feet in the lower or Pinopolis basin. An indication of timber concentration within the area, 132,000,000 feet, or sixty-five per cent of the volume, were found on 19,000 acres, or twenty per cent of the timber producing land—the area of the virgin hardwoods and cypress. The remaining 100,000 acres accounted for 72,000,000 feet.

Because of their relatively small volume of merchantable timber, the cut-over lands do not figure prominently in the Santee-Cooper salvage problem. The big question is whether or not timber on the 19,000-acre virgin tract can be successfully removed in the sixteen months—up to February, 1941, under the present agreement with the PWA—remaining for logging operations. Consequently, a more intimate look into this old growth forest is desirable.

Located just north of Eutawville, and within easy trucking distance of the hardwood lumber manufacturing center at Sumter, this virgin forest rises from the swamps and bottomlands that spread out from the Santee River, particularly in the region of what is known locally as Black Oak Island. Of the 132,000,000 feet of timber in the



U. S. Forest Service



In the great virgin hardwood and cypress forest of the Santee. This magnificent stand, containing 132,000,000 board feet of timber, must be logged by 1941 or be flooded by a reservoir of the Santee-Cooper power and navigation project in South Carolina. Can it be done? — this is what conservationists are asking. Above are specimens of great hardwoods in the virgin tract, at left a red gum, at right a white ash. A stand of cypress is shown in the lower picture

forest, 114,000,000 feet are officially recorded as sawtimber, 18,000,000 feet as cooperage and pulpwood. Considering only the sawtimber, gum accounts for approximately fifty-six per cent of the total stand, cypress seventeen per cent, oak ten per cent, ash seven per cent, and all other species ten per cent.

It is interesting to note here that the most valuable timber species—ash and cypress—total twenty-four per cent of the volume, or about 27,000,000 board feet.

The entire virgin tract—that is, the land—is owned by the Santee Cypress Lumber Company. Timber rights on all but 3,000 acres, however, are owned by the Brooklyn Cooperage Company, which operates a mill at Sumter. This company, a property of the American Sugar Refining Company, has been operating in the Santee region for nearly ten years, logging during this period approximately 40,000 acres of hardwood and cypress. Its cut, during the past few years, according to a company spokesman, has been around 25,000,000 feet a year. The Santee Cypress Company, at the present time, is not engaged in logging operations on the remaining 3,000 acres.

With this picture in mind, ponder the problem that is disturbing conservationists, lumbermen and many others. Is it possible to cut and remove this timber before water begins to back up from the Santee dam early in 1941? J. N. "Ding" Darling, who needs no introduction in the conservation world, and who carried his fight against the Santee-Cooper project straight to President Roosevelt, believes not. Speaking for the lumber interests, John W. McClure, secretary-treasurer of the National Hardwood Lumber Association, in a letter to President Roosevelt late in July seeking his intervention in bringing work on the project to a halt, expressed the following viewpoint: "The project, if carried through, will submerge and destroy one of the finest areas of virgin hardwood timber left in the United States . . . a tragic waste of a valuable natural resource." From this it is evident that Mr. McClure does not think salvage within the time limitations of the project can be successfully carried out.

But what do the authorities directly responsible for what happens to the virgin timber of the Santee think about it? Here is what they have to say: From Dr. Clark Foreman, director of the Power Division of the Public Works Administration, who directs PWA participation in the Santee-Cooper project:—"All lumber in the area to be inundated will be cut by private lumber firms before clearing starts." From Robert M. Cooper, general manager of the South Carolina Public Service Authority—"The Authority, with the cooperation of lumbermen, will remove the timber."

It is evident from these rather positive statements that the Authority and the PWA have definite designs for the orderly salvage of the timber involved, as indeed they have. But, to be factual, it would appear that they are only designs—at least as yet. As this is written late in September not a board foot of timber in the virgin forest tract has been acquired by the Authority, nor has a square foot of the land on which it is growing. Condemnation proceedings have temporarily suspended any move toward immediate application of the plan.

But with this barrier removed and the land and timber acquired, here is, briefly, what the Authority proposes to do: Permit the Brooklyn Cooperage Company to operate to its full capacity—its regular cut of 25,000,000 feet a year plus whatever additional volume its loggers can fell and remove—then sell the remaining timber to lumber companies operating in the vicinity of the

project who now own their timber, with the stipulation that, while cutting timber purchased from the property of the Authority, there will be no cutting on their own holdings. In this way it is intended not only to get the timber out in the prescribed time, but also to avoid the flooding of the hardwood market beyond its normal production and to conserve the timber owned by the lumber companies as a substitute for the timber cut in the Santee basin. This plan, while applying primarily to removal of the virgin stand, is likewise designed to be applicable to merchantable timber in the cutover areas.

In theory this plan appears simple enough, but how will it hold up in practice? There seem to be two answers to this. First, the full cooperation of lumber companies, not the least important of which is the Brooklyn Cooperage Company, is essential. Second, in view of the fact that the Brooklyn company operates the only logging railroad in the swampy virgin area, will it be physically possible, even with full cooperation of lumbermen, to cut and remove more than twice the amount of timber the railroad and other existing logging facilities are designed to handle?

There are any number of established lumber companies owning timber in fee simple and capable of participating in salvage operations—in Sumter, in St. Stephens, in Holly Hill, in Moncks Corners, in Aleola, in Marion, to mention a few in the immediate vicinity of the project. But will they? This observer interviewed a number of eligible lumbermen and while he heard no definite commitments, he gained the impression that when the time came the sentiment of the region would be to assist in the salvage along the lines defined by the Authority, provided, of course, timber prices and operating conditions are favorable. Not that lumbermen in the region view the Santee-Cooper project in a particularly friendly light, but they consider it good business to participate in the removal of the Santee timber on any basis that will minimize flooding the southern hardwood lumber market.

Assuming, then, that cooperation on the part of lumber interests is obtainable, will it be physically possible to remove the timber by early 1941? Opinion on the part of foresters and loggers is divided here. But practically all who are experienced in logging methods in the area involved are agreed that if salvage is accomplished by the intense operations contemplated, new logging facilities, including the construction of additional railroad into the area, will be necessary—an undertaking and expense that will no doubt fall upon the South Carolina Public Service Authority.

Critics have consistently raised the very significant question of whether or not the \$40,000,000 bank account of the Authority is sufficient to pay for the Santee-Cooper project as contemplated? A tremendous amount of money is needed to acquire 165,000 acres of agricultural and timber producing lands, to build a dam eight miles long, another two miles long, to clear river channels and to install hydro-electric power equipment capable of generating 700,000,000 kilowatt-hours a year. Six million dollars have already been earmarked for land clearing; another \$2,000,000 has been set aside for land acquisition, the average price per acre being estimated by the PWA at \$13.30; contracts running into the millions have already been made for the heavy power equipment, for the gigantic engineering works. Thus, it is well to ask if the Authority has set aside a sufficient surplus to engage in expensive logging operations in the virgin Santee area. It appears quite certain that such operations on an extensive scale were not contemplated.

plated by the Authority in its original estimates, nor, it is likely, was prolonged condemnation action in land acquisition which is now evolving.

What turn, then, will the situation take if by financial commitments the Authority's well runs dry before removal of the timber is undertaken? It is certain that private timber operators, though willing to cooperate, will hesitate to invest their own capital in the project. But what about additional public funds? If such an emergency arises will the federal government act, as it did in New England following the destructive hurricane two years ago, to salvage valuable timber? This has been debated, but as this is written no direct

cerned but in other areas as well, it is reason enough for an extension of time, perhaps an additional two years, to be given the Authority by the PWA for the completion of the project. Can and will the PWA do this? It can, and will, according to Dr. Foreman, if reasons for extension are "legitimate." Is delay in acquiring the 165,000 acres in the Santee basin because of, say, title difficulties and condemnation action considered "legitimate"? It seems that it is.

There, in this observer's opinion, is the factor, should other efforts fail, that will assure the orderly cut and removal of timber in the Santee basin.

One ardent conservationist in South Carolina con-



Sara Trenholm

The value of the 100,000-acre Cape Romain Bird Sanctuary along the Carolina coast, particularly as a refuge for ducks, will, biologists say, be affected by the damming of the Santee River—but to what extent no one seems to know. Some shore birds, such as the terns shown above, will not be affected

move has been made, so far as could be determined, to bring about such action.

Calm and experienced heads in South Carolina, however, are wont to look at the situation differently. Logging operations, they argue, cannot begin under any circumstances until the Authority acquires the land and timber involved. This acquisition is being held up by condemnation action involving the Authority, the Brooklyn Cooperage Company and the Santee Cypress Lumber Company. How long these proceedings will be debated no one seems to know. But one thing appears certain, the longer the debate, the shorter the time, under the present agreement, for salvage operations. They point out, then, and logically enough, that if acquisition is greatly delayed, not only where the virgin tract is con-

cluded an interview on the Santee-Cooper project with this pertinent observation: "The real issue seems to be not so much a question of how we salvage the present stand of timber in the Santee basin, but whether or not we can afford to lose a succession of future stands by taking the land out of production."

This question is, of course, almost impossible to answer for the reason that no man today can say what South Carolina or any part of it will need in the way of timber growing lands a century or more from now. Therefore, the second important conservation problem in the Santee must deal with the present and must be reduced to the effect the removal from production of considerably more than 100,000 acres of good timber growing land will have on forestry and forest industries in

the coastal region of the state. The first step here is to examine the forest resource of the region, beginning with the area immediately adjacent to the lands to be flooded. In February, 1938, the South Carolina Commission of Forestry, in conjunction with the federal Forest Service, issued a report analyzing forest conditions in ten counties spreading out immediately north and west of Berkeley County, scene of the Santee-Cooper project. This report revealed that in the counties in question, 299,500 acres of old growth hardwoods held 2,238,700,000 board feet of timber, that there were 648,000,000 feet of second growth hardwood timber on 219,400 acres, and, finally, there was an unmerchantable clear-cut area of 293,800 acres on which was growing 40,800,000 board feet of hardwoods. All of this totals up to 2,927,000,000 board feet growing on 812,000 acres.

The important point to consider here is that the hardwood lumber industries of the central and coastal region of the state more or less center in these ten counties. Will their timber supply be seriously affected by the removal from timber production of the Santee's 165,000 acres?—or, to be exact, 119,000 acres, for approximately 46,000 acres of the area to be flooded is at the present time non-timber producing land?

Before attempting to answer this, it is significant to look at the forest resource of the entire coastal region. The southern forest survey recently made by the federal Forest Service reveals that there are in the coastal area 1,428,300 acres of merchantable hardwoods bearing timber of sawlog size. This acreage contains 9,746,500,000 board feet over sawlog size. From this, the Santee-Cooper project will cause to be removed 204,000,000 feet of timber; and from the 1,428,300 acres of hardwood producing land 119,000 acres. Does this removal suggest that the hardwood lumber industry of the region will suffer a shortage in raw material now or in the immediate future?

If the situation is viewed as it actually exists, the answer appears to be this: First, that the region already has a greater net annual growth in hardwoods than is being consumed. Second, the Brooklyn Cooperage Company is reported to have a ten-year cut in the Santee region, 16,000 acres of the 19,000 of virgin hardwood and cypress being a part of it. As this company's operation is the only one of any importance in the area in question, it seems to follow that the flooding of the Santee swamps and bottomlands will curtail the activities of only the Brooklyn Cooperage Company, and this at the most by reducing the life of its operation there by about four years.

What about the effect of the Santee-Cooper project on the forestry situation in the state? No authority is in a position to know more about this than H. A. Smith, state forester. He says: "Within the area to be removed from timber production, forestry practices are not in force today—not even fire control. The virgin hardwoods and cypress involved are being logged by a company (Brooklyn Cooperage Company) which owns only the timber rights and which is admittedly not interested in the future of the land. The area has been and will continue to be logged with skidders with absolutely no regard for future timber supplies. It is needless to say that these conditions do not contemplate forestry within any reasonable understanding of the term. Therefore, it is my opinion that the removal of the 165,000 acres from timber production in the Santee basin cannot affect the region's or state's forestry situation, if we mean by forestry the best utilization of wild lands from the standpoint of timber production."

Turning now to the wildlife problem. On the authority of Clarence Cottam, senior biologist of the federal Biological Survey, the lower Santee, under existing conditions, "constitutes one of the nation's major wintering, feeding and resting grounds for a large number of migratory aquatic game birds." It seems that the forces of nature have united in developing there a bounteous supply of excellent food and cover—the primary requisites for an abundant wildlife population.

Coursing through this swampy plain, the Santee arrives at the sea through a hundred or more delta mouths which empty their fresh waters into a sound formed by Cape Romain and a long chain of islands. As the fresh water merges with the water of the sound, a gradual process, a series of zones of varying salinity are created. The zone nearest the shore is comparatively fresh, the one adjoining is less so, and so on until the waters of the sound join with the open sea. As is the law of nature, each of these zones has its favored types of vegetation and biological life.

That these zones and the biological life they support will be affected by the damming of the Santee is a foregone conclusion. The only question is to what extent. At the moment there is no one to say exactly how much water will pass over the dam when it is completed; nor is it known exactly how much fresh water is needed to maintain favorable conditions for waterfowl and other wildlife in the delta region. Biologists have learned from experience that a too rapid or too drastic change in salinity may spell doom for an existing wildlife environment, but it is admittedly impossible for them to attempt in advance to determine the exact volume at which fresh water flow must be maintained in order to prevent it.

According to Brigadier General John J. Kingman, acting chief of engineers for the War Department late in 1938, the average discharge of the Santee River fourteen miles above the proposed Santee dam, for the twenty-eight year period from 1908 to 1936, was 18,900 cubic feet a second. During freshet periods the flow may reach 360,000 cubic feet a second, during periods of drought it may drop to 2,500 feet. In fact, during the drought years of 1926 and 1927, the average flow of the Santee fell below 10,000 feet a year.

The license granted for the construction of the Santee dam contains a condition that until such time as the United States improves the Santee River in the interest of navigation, a continuous discharge below the dam of not less than 500 feet a second must be maintained. Assuming for the moment that the Santee flow will be held to this minimum, what effect will such a drastic reduction have on wildlife environment in the low country region?

Federal Biologist Cottam answers this as follows: "In 1925, when drought reduced the flowage of the Santee to 2,500 feet a second for a short period, the tidal flow brought the ocean water up the river in such concentrations that much of the best foods were killed out. Several years of normal flow were required to restore present conditions. With this as a gauge, it is evident that a reduction to 500 feet would be ruinous to the duck marshes of the area."

But suppose the project engineers, under normal conditions of rainfall, are able to send a greatly increased volume of fresh water over the dam, as indeed they contemplate? Suppose, as these engineers hope, the flow of water over the dam will, for more than seventy per cent of the time, exceed 500 cubic feet a second, and for thirty-two per cent of (Continuing on page 560)

A FOREST POLICY THAT GOES ALL THE WAY THROUGH

By WILLIAM B. GREELEY

A FOREST policy for the Pacific Northwest must be rooted in two vital facts:

1. Forest industry is the economic powerhouse of this region; it is our only large industrial source of employment and production.

2. Forest industry must progress from timber mining to timber cropping; and thereby permanently maintain the earning and employing power of one-half of our land.

As to the first fact, let me give in round figures the current of economic power that flows from Pacific Northwest forests. About six and one-half billion feet of timber were manufactured in the Douglas fir region of Washington and Oregon in 1937. It paid directly, in wages, nearly \$69,000,000. It paid for materials, supplies, and services used in manufacture—\$52,000,000. It furnished over sixty per cent of the tonnage moved by our rail, water, and motor carriers; and paid more than \$70,000,000 in freight. It paid nearly \$5,000,000 in taxes on timber, and an additional \$5,000,000 in taxes rising from manufacture. Every dollar's worth of standing timber felled in the Douglas fir region created over \$13.00 worth of wages, supplies, transportation and taxes.

Forest industry is the great wage disburser of the Pacific Northwest. It carries sixty per cent of our industrial payrolls; and the largest single share of all wages in Oregon and Washington. Over fifty cents out of every dollar received by the manufacturer of Douglas fir lumber during the past three years has gone into wages, at an average rate of seventy-five cents per hour.

Whatever sins may be chargeable to the timber and sawmill men of the West, let us at least give them credit for their part in the economic and social structure which we have today.

And now forest industry is called upon to convert its pioneer current of economic power into the permanent load of the Pacific Northwest. National policy and public interest are strongly focused upon the timber crop; upon forests as a perpetual resource sustaining undiminished industry and employment. Timber is the only crop that about one-half of the land in Oregon and Washington can grow; and a little over half of this twenty-seven-odd million acres of productive forest land is in private ownership. The

Reed College, located at Portland, Oregon, included in its Institute of Northwest Affairs this summer a discussion of conservation questions vital to the welfare of the Pacific Northwest. Among the speakers was William B. Greeley, formerly Chief Forester of the United States and now secretary-manager of the West Coast Lumbermen's Association. With characteristic clarity of thought and expression, Mr. Greeley made an appeal for a public forest policy "that goes all the way through" not only in dealing with the problems which hold the foremost industry of the Pacific Northwest in their grip, but in meeting the forest situation nationally. His address, here reprinted, is a contribution to clearer thinking and action that merits wide reading.—Editor.

trend of our public policies is toward an obligation on the owner of forest land to maintain its productiveness and earning power as a permanent asset in state and national economy. And here is a large voltage, indeed!

The farsighted use of forest land, indeed the restoration to forests of vast areas of submarginal farms, are foremost today in national planning. The latest surveys of the Forest Service classify some 630 million acres in the entire United States that should remain or be restored to forest; and 461 million acres are classed as commercial forest areas that should be devoted to economic timber crops. That is more land than is now in all of our farm crops, pasturage excepted. To attain these conceptions of enlightened land use, the United States should become a still greater forest-growing and forest-marketing country than it has ever been before.

Forest planning is strongly focused upon the Pacific Northwest, because here we have over one-third of the standing timber in the United States. To us is being brought home decisively, and to our forest owners, the urgency of timber culture as a foundation for employment, community stability and social security.

Forest industry in the Pacific Northwest has responded to the public interest in reforestation. It has gone a long way in fire prevention. The cold figures for Oregon and Washington show an annual expenditure by private owners and loggers of approximately \$1,300,000 a year for removing fire hazards, for patrols and other preventive measures, and for fire fighting. Outside of the national forests, and not including the beneficial work of the Civilian Conservation Corps, private ownership and industry are paying seventy-eight per cent of the cost of protecting this primary resource of the two states. The states and federal government pay the remaining twenty-two per cent. Yet the logger causes only five per cent of our forest fires. Except for those started by lightning, the rest are practically all caused by the forest-using public. Smokers, campers, and incendiaries are responsible for over one-half of our forest fires. Here is one respect in which forest industry needs a public power line — one that will supply more effective and alert support from the people of this region in reducing the primary hazard in



William B. Greeley

timber growing. The old timber philosophy of quick liquidation, "Cut out and get out," is still entrenched in the Pacific Northwest; but it is slowly changing toward the newer conception of timber cropping. In the days of the National Recovery Act, the associated loggers and lumbermen of the Douglas fir region, as in other forest areas of the United States, adopted a code of forest practice. It was based upon their own experience in their own woods; and drafted with the aid of the state and federal forest services. It aimed to do the first things first: to get effective fire prevention well established; to leave cutover lands with a seed supply for restocking. That code of forest practice did not die with the Recovery Act. It has grown in influence and observance. The great bulk of the timberlands logged today in western Washington and western Oregon are left in good condition for fire prevention and reseedling. In a gratifying number of cases, forest owners have gone much farther—in selective logging, in plans for reshaping their operations on a basis of sustained production. The West Coast lumber industry is in transition from the old order to the new. It wants to maintain the current of power which the people of this region look to it to generate for their future prosperity, if it has an economic basis on which to work.

To cite an example of present-day lumber thinking in this region: It was the lumbermen of western Oregon who demanded that the administration of the Oregon and California Railroad Grant be changed from its former basis of liquidation to a new basis of sustained, permanent forest management.

But in this change from the old order to the new, we meet the fundamental problem of forest conservation. How will the bill be paid?

Men conserve that which has value. Men create things which promise commercial rewards. This is just as true of forest-growing enterprises as it is of a corner grocery or a filbert orchard or a banking institution. But with this difference: The timber grower must think in terms of decades instead of years. His investment must be staked on the value of a crop maturing eighty or 100 years after it is planted.

This is simply to say that forestry must be viewed by the private investor as a business. The public also must view it as a business. The federal government in its promotion of sustained yield must view the enterprise as a business, at least to the extent that private initiative and private capital are invited to participate in it. A sustained yield of timber in the United States, this perpetuating crop on half a billion acres, which appeals to us all as a means of using land and maintaining permanent pay rolls, cannot be brought about simply by telling the forest owner what he ought to do or writing regulations to control the use of his property.

The threat of a timber famine in the United States is passing. The public and industrial efforts in fire prevention and other essentials to forestry are bringing about a growth of timber more than adequate to supply all present requirements of consumption. The economic problem of forestry in the United States hereafter will not be how to supply enough timber for our requirements—but how to find sufficient markets for the timber crops that these great areas of land will increasingly produce. The forest problem, like the wheat problem or the cotton problem, is fundamentally one of markets.

The leading forest countries of Europe learned this lesson generations ago. In France, Germany or Sweden, the security of domestic forest industries and domestic timber values is as deeply entrenched in public policy as the system of land usage and control. Economic

security is the basis of their conservation. It is impossible to conceive of France, Sweden or Germany subjecting their domestic forest culture to the competitive hazards that are still so lightly placed upon timber cropping in the United States by policies of our national government.

In the Pacific Northwest, the present drain upon our forests from all forms of use and loss is roughly nine billion board feet per year. Our forest growth is steadily increasing as more virgin lands are cut and converted from stagnant reserves of old timber into growing woodlands. When this process is completed, if the protection from fire and the degree of restocking remain as at present, the yearly growth of timber will approximate ten billion board feet. If protection from fire could be made 100 per cent effective and a general degree of restocking attained, equal to that today where the forest practice rules of the industry are fully effective, we may expect a current annual growth of fourteen or fifteen billion board feet. That is the goal we should strive for, with the industry doing its part.

But what of the markets for this enormous forest crop? What business security can be offered the forest owner who is urged by his government and state and by the public interest of his region—no longer "to cut out and get out" but to embark in the permanent business of growing and harvesting trees?

The economic record of forest industry in the Pacific Northwest is not one to inspire confidence in timber-growing enterprises. In the last eight years, the Douglas fir milling capacity has been employed between thirty and sixty-five per cent; and unemployment in mills and logging camps has ranged between 20,000 and 40,000 men. There is a staggering record of sawmills that have dropped out of business altogether—only rarely from lack of available raw material; chiefly because they could not sell their lumber at cost of production. In only one of the last eight years has the average realization of the West Coast lumber industry repaid the average cost of production. Struggling with rising labor costs, restricted markets and sharper competition, the problem of our lumber industry has been to survive. It is hard to convince men, engrossed in this primary struggle for self-preservation, that they should undertake the business of growing trees.

The tough going for Northwestern forest industry is partly because we are the last great timbered section of the United States to be developed. We are still carrying immense reserves of old-growth timber which have accumulated taxes for thirty or forty years and are pressing for liquidation. It is partly because of the sharp decline in building throughout the United States, which last year stood at only fifty per cent of the average volume in pre-depression days. It is partly because our lumber industry wages and working conditions have placed us on a pinnacle of cost and restricted the competitive range of our markets—the world over. It is partly because of the almost complete collapse of our foreign trade, which today is about one-fifth of its former volume.

With some of these problems, of course, only the industry itself can deal. In others, it definitely needs the help of our region and of our government. Particularly is such help warranted when forest industry is called upon to be the custodian of forest land, to stay put on its acres and to contribute heavily to the future economic prosperity of this region through timber cropping.

I do not believe that the United States should "buy out" the forest problem, through wholesale nationalization of forest lands. As a (Continuing on page 572)

EDITORIAL



STREAM POLLUTION

IN A LETTER addressed to the editor and printed in the Readers' Forum section of this issue, Mr. Arthur Pack, President of the American Nature Association, expresses disagreement with the position of The American Forestry Association in respect to legislation dealing with stream pollution. Letters of similar content have been received during the summer from leaders in other fields of conservation, including Mr. Jay N. Darling, former President of the National Wildlife Federation, and Mr. Otto C. Doering, President of the Izaak Walton League. Such comment is welcomed and as Mr. Pack suggests, is wholesome and helpful in resolving differences.

In this instance the difference is not as great as some of the Association's critics seem to conclude. All groups are agreed on the urgent need of ridding our streams, lakes and water sources of polluting waste as rapidly as feasible. The difference relates to legislative methods of accomplishing the task. Mr. Pack and others have assumed that the Association has endorsed the Barkley bill, one of several introduced in the last session of Congress. This is not strictly correct. The Directors did not attempt to place the Association's seal of approval on any bill or its detailed provisions but rather to enunciate the legislative principle which in their judgment best conforms to established state and federal jurisdictions and therefore promises greatest results in the long run. Its position was stated in the following brief resolution: "That The American Forestry Association favors the principle of state control of the pollution of waters with the aid of federal studies and federal contributions rendered through the agency of the U. S. Public Health Service."

It is true that this principle underlies the Barkley bill and several of the other measures pending in Congress. It departs from the Mundt bill sponsored by the Izaak Walton League and supported by other wildlife organizations in that the latter bill would make the War Department the federal functioning agency instead of the U. S. Public Health Service. All of the bills would create a federal agency of water pollution control and would provide for cooperation and coordination with state agencies in dealing with local problems of pollution; and all of them would authorize federal grants-in-aid and loans to municipalities and industries for the construction of sanitation works. The Mundt bill, however, contains enforcement provisions lacking in the other bills which would give the War Department authority to promulgate anti-pollution regulations and to enforce compliance by municipalities and local industries if state agencies fail within a reasonable time to secure action.

In considering the question of whether federal participation in solving the pollution problem should head in the Public Health Service or in the Army Engineers of the War Department, the Directors of The American Forestry Association viewed the pollution problem as one whose most important aspect is that of safeguarding the public health. At the same time, its bearing upon recreation and the protection and propagation of fish and animal life was not overlooked. It was felt that the Public Health Service, having been established to represent the federal government in matters of public health, is the logical and proper agency to invest with greater authority and means to deal with the pollution evil. This Service not only has the technical background of study and experience in pollution questions but it has working contacts with established state public health agencies in each of the states. To divide the public health field between two federal agencies seemed uncalled for from the standpoint of good organization and orderly relationships with established state agencies in working out a long-time problem that will call for several billions of dollars to correct. The problems of the pollution field fall primarily within the jurisdiction of the states and to place them under the regulatory power of the War Department seemed clearly a doubtful expediency.

The justification of the wildlife groups for calling in the War Department to deal with the pollution problem seems to be based upon a conviction that the Public Health Service even though given broadened authority and increased funds cannot and will not carry out its legislative mandate; and to the Service's alleged lack of sympathy with the wildlife field and its disbelief in federal enforcement measures. All conservationists will sympathize with their restiveness that more is not being done to clear up the many intolerable pollution situations that blight our streams. It may fairly be questioned, however, if this is sound grounds for calling in the military branch of the government. Certainly our federal administrative machinery and that of the states likewise would become hopelessly confused if whenever a federal agency failed to satisfy a group of citizens, one of its proper activities were to be legislated into the War Department or even into another branch of the government. When Congress passes an act placing upon a federal agency certain clearly defined responsibilities with authority and means to carry them out, the public has the right to expect that the agency concerned will fulfill those responsibilities. Unless this confidence can be imposed in Congress and in the administrative agency charged with action, any legislation dealing with pollution or with any other subject becomes merely a game of speculation.

FARM BOYS PLANT FORESTS

FOR THE FUTURE

By CLARA BAILEY

ON WINDSWEPT prairies, on worn-out lands, on stony fields and steep hill-sides, wherever there are farms, farm boys in 4-H forestry clubs are planting trees. Some fence off and establish a farmwoods on their father's farm, some have a definite part in planting a windbreak on the home farm, some, as members of a 4-H forestry

club, plant school forests or club forests and some care for a club nursery to provide seedlings for neighboring farmers. Many clubs also organize fire fighting crews to keep down damage in the forests they have planted as well as in the old growth forests in the neighborhood. Individually the achievements of these twenty-five thou-

sand 4-H boys and girls may not be too impressive but together they are making a significant contribution to their country.

With the slogan "Young folks and trees grow up together," New York State boys and girls have planted more than 12 million trees in the last thirteen years — a worthy asset in the economy of the state. Last spring 1,300 members of 4-H forestry clubs in forty-eight counties planted 1,600,000 trees. Each member received 1,000 trees through the cooperation of the State Conservation Department by paying the shipping charges. In addition 100,000 more trees were bought by club members to add to their one-acre plantations originally started with free trees.

Nearly fifty per cent of the young forests planted by New York State youth are suited for Christmas trees, with Norway spruce the most popular. Six million Christmas trees will eventually furnish many a home with festive yuletide atmosphere and the young foresters will get a money income. An average survival of more than eighty-three per cent of the trees planted in 1938 speaks well for the skill the boys are developing. Should the survival after two growing seasons be less than seventy per cent through no fault of the boy, the Conservation Department will replace the trees. The influence of these small plantings in stimulating interest



From Maine to Florida and west across the prairies, forest planting is the most popular of all 4-H forestry projects



It takes years of care and cultivation to grow a windbreak in Kansas. These Chinese elms, set out for the protection of this boy's farm, are thriving

in reforestation on idle and waste land is hard to estimate. Relatives, neighbors and friends take a kindly interest in what the young folks are doing and are quick to observe the advantages or disadvantages.

In Benton County, Indiana, is Paul Metzinger. As a member of a 4-H home-ground development club the State nursery furnished Paul 300 evergreen seedlings, 100 black walnuts, fifty black locusts, fifty white oaks and some American and Chinese elms to make a demonstration planting and show what may be done with trees in developing the home farm. With the aid of the State forester he arranged a public demonstration in planting and aroused considerable interest among the citizens of the community. He planted the evergreens in a nursery for later use in a windbreak and the hardwoods were set out near a creek in a small farm lot at the back of the farm. All the neighbors are now watching the progress of the young trees.

Gullied waste land in Marshall County, Kentucky, which was once in farm crops but now only suitable for reforestation evidences generations of poor soil management. To meet this three 4-H clubs have established nurseries and each have planted ten pounds of black locust seed. The boys have produced 100,000 seedlings. They found a ready market among farmers in Marshall and adjoining counties for planting on land too badly eroded to produce crops.

Down among the hills of Brown County, Indiana, fifty-seven forestry club boys have planted 10,000 black locust seedlings on eroded land, each summer for the past three years. They have done a good job as proved by an excellent record of survival. These seedlings are furnished the boys without charge by the Division of Forestry of Indiana's Department of Planning and Resources and are often planted under a forester's supervision.

In Mississippi 2,385 boys enrolled in 4-H forestry clubs are planting seedlings under the supervision of the extension forester. More than 500,000 seedlings were grown and planted for erosion control on the home farms of the members in 1937. The next year, about 750,000 seedlings were planted and even greater plantings are under way in 1939. To encourage the work of the Mississippi 4-H forestry clubs, the Soil Conservation Service nursery at Coffeerville has given the boys more than 3,000,-

000 trees for planting on eroded fields in the vicinity.

According to F. W. Dean, Ohio extension forester, eighty-five per cent of the timber in the state and ninety-five per cent of the lumber cut each year is taken from farm woods. In tree planting, Tuscarawas County tops the list with 81,000 trees set out last year by 4-H club members. During the fifteen years that young people have been planting trees in the county, more than 500,000 trees have been planted as an investment for the farmers of tomorrow and to add to the wealth of rural communities. Even those who merely pass through Tuscarawas County notice and enjoy the beauty of the trees planted by the farm boys and girls of fifteen years ago.

A new phase of 4-H forestry work has been inaugurated in the state of Washington. Each county is turning over to the 4-H clubs a block of land of 160 acres or more. This land will be reforested or the stand thinned, firetrails will be built for the protection of the trees, and other forestry practices will be established as needed. All this will be done by 4-H forestry club



White pine thinnings offer a present income and promise even larger returns in this boy's lifetime



No forest is safe without forest protection. These Florida boys are cleaning a fire trail for the protection of the 4-H Club woods

members. These 4-H demonstration forests were inaugurated after soil surveys had shown that much of the land was suitable only for forests. The idea is based on the assumption that a long range educational program is needed to conserve existing timber and establish the fact that logged-off areas with their second growth are so valuable as to justify their protection for future generations. A recent survey showed that about seven per cent of former 4-H club boys are engaged in some form of forestry work, either as employees, loggers, foresters or in allied occupations. It is hoped the training given 4-H club members will act as a leaven toward making all rural communities conscious of the need of forest and soil conservation.

In South Dakota, the Prairie States Forestry project has given 4-H club members undersized green ash, American elm, Chinese elm, Russian olive and caragana stock



"There's heat in them thar trees," — this sprout being cut as part of a 4-H improvement thinning will again warm him and his family as it fills the winter's fireplace or furnace

which could not be used in their own plantings. About 300 boys received the trees and lined them out in nursery rows. All the trees belonging to one club were planted together and cared for cooperatively. These trees are now being transplanted as farm shelterbelts for the benefit of the farm homes. All together South Dakota boys planted nearly 900,000 seedlings last year and are prepared to make a better record this year.

It is not only on the farm that a windbreak is an asset, as a small community in Perkins County, Nebraska, can testify. The principal buildings of the community were a school house, a church and a parsonage which stood out on the prairie stark and unprotected from cold winter winds and the hot summer sun. Three years ago

when there was much talk of shelterbelts, the minister and a few farmers visualized how useful and attractive a windbreak would be for the community center. Organizing a 4-H forestry club they obtained seedling trees through the Extension Service for the boys to plant. The community added to them by the purchase of several trees about three feet high. These were planted to the west and north of the buildings. The small evergreen trees were planted in a garden to be transplanted a year later. The first summer was hot and dry but the boys kept the ground free from weeds and watered the trees when required. Meanwhile they studied about trees and their care. So, in spite of unfavorable weather eighty-six per cent of the 352 trees survived. Now the windbreak is fast becoming a thing of beauty as well as a protection to the buildings. Best of all, it is a source of great pride to the boys, their families and friends.

The junior forest rangers of Wisconsin are a well organized 4-H group whose achievements are becoming increasingly impressive. More than 450,000 trees were



A 4-H Club boy of Essex County, Vermont, weeds out the white maple saplings from his future sugar trees, which he has marked with strings of cloth

planted last year. Most of these were seedlings from 4-H transplant beds started several years ago. Thus the young rangers are supplied with trees to plant and at the same time they learn how to grow them. The plan enables the club member to lift the trees, plant them immediately and save much of the loss from exposure and extra handling.

Typical of the work the Wisconsin rangers are doing

is this report from Elmer Miller of Spring Valley.

"I first put up two temporary wires around a small lot just large enough for the seedling trees but later I constructed a permanent fence around ten acres of hillside. This gives me nineteen acres of protected woodland as my project. I have gathered seeds for fall planting in my nursery. I have seeds of maple, butternut and oak. I also bought a half bushel of black walnut seed which I am going to stratify. I have planted more than 1,500 hard maple seedlings and several hundred white pine which I grew in my nursery."

Along with forest planting, fire protection must be given a place with the young farmers. The Ansonia Club of New Haven County, Connecticut, has a fire crew which helps control fire in their own woods and in the area surrounding the town of Ansonia. To do this they have purchased and equipped a fire truck. In addition to keeping down the losses on 3,000 acres of woodland they are frequently called to put out fires in neighboring towns for a distance of more than ten miles. The boys paid for their truck by collecting papers and by selling Christmas trees which they thinned from the Ansonia Water Company's plantings. The latter venture gave the boys a profit of \$125. Their proficiency in forestry practice is attested by prizes received by four members from the Connecticut Forest and Parks Association.

More than 1,000 of New Hampshire's rural youth have enlisted in the 4-H Forest Rangers to protect woodlands from fire. This is especially timely because of the damage done New England's woods by last September's hurricane. Bicycle patrols make the rounds of critical points, lookout towers are being erected and an educational campaign is conducted among tourists and campers. The State Forestry department furnishes green and white arm bands and badges for the patrol leaders to wear on duty.

Sometimes these forestry clubs have shown the way to continued income for the farm. This was true near Panama City, Florida, where a paper mill which has been operating since 1930, has been buying pine of sizes and grades which were formerly worthless. After five or six years it was evident that unwise cutting, uncontrolled fires and no reforestation were exhausting the supply. The Panama City Chamber of Commerce knowing that "Idle Lands make Idle Hands and Idle Industries," helped organize a 4-H Forestry Club in its



More fun than building a shanty! This thirty-foot Connecticut fire tower is built, as well as manned, by 4-H Forestry Club boys

campaign for conservation. In the last three years these boys have planted more than 100,000 pine seedlings.

So while many of the farmers of yesterday cut the forests, wasted timber and allowed their land to wash away, tomorrow's farmers are making headway toward remedying their mistakes. The trees they have planted and those they have protected should repay them a hundred fold. In addition they will add immeasurably to the wealth and beauty of the nation. This movement includes nearly 25,000 rural boys and girls who are learning to cherish trees and to feel a responsibility for their conservation.



North Carolina boys assemble in a second-growth pine forest to listen and discuss seriously forestry for the future

CALIFORNIA WHITE OAK

Quercus lobata Née

By G. H. COLLINGWOOD

THE BROAD crowned, graceful, California white oak with its massive trunk and drooping sprays of branches is peculiar to the state whose name it bears. It is the largest of fourteen oak species, only nine of which attain tree stature, native to California. It is found in low valleys and on low rolling plateaus between the Sierra Nevada and the Pacific from the Trinity

River in the north to Tejon Pass in the south.

Trees forty to seventy-five feet tall are common, while a few individuals reach 100 feet or more. The trunks are short and massive with diameters ranging from two feet to occasionally ten feet. With maturity the broad crown consists of many high arching branches extending into long slender pendulous branchlets which often touch the ground.

Found most abundantly on fairly rich soil, this tree favors hot, moist valleys and avoids those which face the ocean. It grows from a little above sea level to 2,700 feet in its northern range and up to 4,500 feet above sea level in its southern range. In the foothills above the valleys it is seldom over thirty feet tall with a trunk about one foot in diameter.

The deep bayed, leathery, deciduous leaves have seven to eleven obliquely rounded lobes. They vary in size and form on the same tree, but are usually two and a half to four inches long. A covering of fine hairs on both surfaces helps the leaves resist the drying influence of days of sun and hot wind. The wedge-shaped base leads to a stout, hairy stem or petiole a quarter to half an inch long.

Heavy crops of bright chestnut-brown acorns about one and a quarter to two and a half inches long are usually produced dur-



California white oak raises a great dome of foliage above the valley or low plateau



With the loss of leaves in winter, long pendulous branches, full of grace, are revealed

Forest Service

ing alternate years. They are slender and quite pointed, with a pale woolly or even warty cup which covers about one-third of the nut. Borne singly or in pairs, they have little or no stem and mature at the end of one season. Having a sweet kernel, the acorns were formerly eaten by native Indians, but are now only fed to hogs.

The staminate flowers are apparent in early spring as yellow, hairy strings two to three inches long. The less conspicuous acorn bearing pistillate flowers are borne singly, or occasionally with a few others on elongated spikes. Both sexes grow on different parts of the same tree.

The light brown to ashen gray bark of the main trunk is checked deeply to form rough irregular cubes one to two inches across. It is one to four and a half inches thick.

The wood is dull brown in color, hard, brittle and close grained. Lighter than white oak, a cubic foot weighs thirty-nine to forty pounds when air dry. It is perhaps the least valuable of the Pacific Coast hardwoods, but early settlers used logs for their cabins. In spite of the frequent cross grain, they succeeded in riving shakes and splitting out posts and rails from the trunks. Its chief value is for fuel. Large trees sometimes produce fifty to ninety cords of stove wood, but the soft texture early gave it the name "mush" oak.

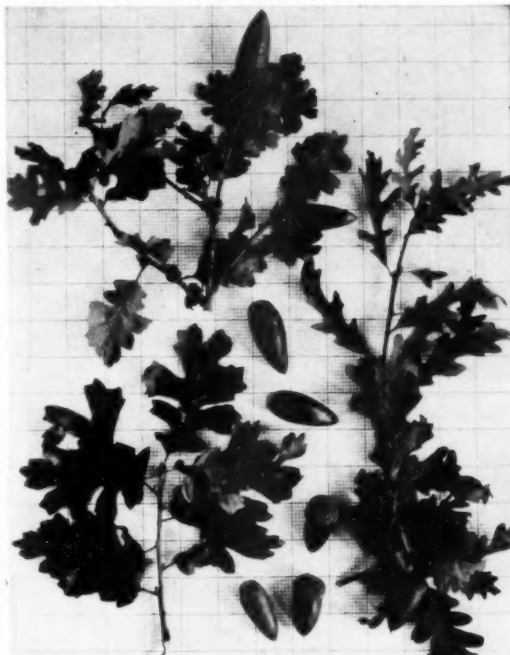
Frequently referred to as valley oak, the more inclusive name California white oak is now accepted. *Quercus*—the Latin name of the oak family is derived from the ancient Celtic *quer* or *fine* and *cuez* for tree. This has been interpreted as "beautiful tree." The rounded lobes of the leaves are probably referred to in *lobata*. Louis Née, an eighteenth century botanist of French birth, but a Spaniard by adoption is credited with earliest description of the tree. While rounding the world with a Spaniard named Malaspina from 1789 to 1794, he made botanical collections and observations in Mexico and the Pacific Coast.

Between ages of 125 and 300 years when the tree has attained a height of fifty to 100 feet, with a form resembling American elm, long pendulous branches develop to produce a weeping stage. Its amazing vigor is shown occasionally when old trees whose branches have been lost by storm or disease develop a new crown of erect, relatively straight branches.

This white oak grows with reasonable rapidity. One tree is credited with having attained a diameter of twenty-one inches in fifty-seven years, and it may live for 400 or more years.

In spite of the heavy biennial crops of acorns, reproduction is usually poor. This may be due to the dense carpet of grass beneath some trees, or the fact that it sometimes grows in the midst of a valley long used as a wheat field. The seed also are sought by hogs, mule deer, and other wildlife. Germination can usually be assured if the acorns are well covered with fresh litter or soil.

The tree's tendency to select the best agricultural soils has resulted in the loss of many of the fine old specimen trees. It has few enemies, however, and resists long periods of excessively dry weather. Although seldom successfully cultivated outside of California it deserves to be planted to an increasing extent along the highways throughout the Sacramento and San Joaquin valleys, as well as for shade in the cities and towns. To allow for the wide spread of branches in maturity, trees should be planted at least eighty to 100 feet apart.



Woodbridge Metcalf

Leathery leaves with seven to eleven rounded lobes partly conceal the slender pointed acorns



The deeply divided bark may be ashen gray to light brown



Natural range of California White Oak

Conservation Over the Dam

(Continued from page 550)

the time exceed 10,000 feet? What then?

The truth of the matter is that everyone connected with or interested in the project knows that wildlife habitat, particularly for ducks, geese and swan, will be affected in the delta country. But no one knows to what extent—nor can it be known until the Santee dam has been in operation for a number of years.

The 100,000-acre Cape Romain Bird Sanctuary of the federal Biological Survey, which occupies a fifty-mile strip along the coast between the mouth of the Santee and Charleston, will be disturbed "seriously and adversely," Mr. Cottam believes. "Being in close proximity to gunning areas," he added, "the refuge is almost indispensable as a resting area where birds concentrate to receive protection. Its full value will be greatly reduced if the Santee feeding areas are destroyed."

There is another angle which is disturbing conservationists. In the flood plain immediately below the proposed dams and diversion canal, most of the trees and herbaceous plants, it is claimed, will be killed either by drying out or by increased salinity. Therefore, it is argued, it is inevitable that the rich and varied faunal life will likewise perish, or be driven out. Particularly are the wildfowl disturbed about the fate of the wild turkeys of the region, said to be the purest strain found in eastern North America. If their favored and isolated habitat is destroyed, either deterioration by interbreeding with inferior

stock or complete extermination is prophesied for them. However, it is interesting to note that the Biological Survey is taking steps to perpetuate or even increase this pure strain by establishing a sanctuary and breeding grounds on the Cape Romain refuge, in an area that will not be affected by the Santee-Cooper project.

In the face of this anticipated disturb-

be taken care of in adjoining areas of land excellently adapted for that purpose, such as the Francis Marion National Forest. In addition, the Authority hopes to establish game sanctuaries on any surplus lands which it may acquire."

As to the reservoirs proper, a large part of which will be covered by shallow water—from five inches to two feet deep—the

Authority considers them "ideal places for sanctuaries for waterfowl of all species, and for the protection and propagation of the finest fresh water fish."

This belief is based on studies made by the State Game Department, which looks upon the comparative shallowness of the reservoirs as "conducive to the development of aquatic and wildfowl life." Quoting A. A. Richardson, chief game warden: "In characteristically deep hydro-electric reservoirs a great part of the water is non-food producing and uninhabitable to fish. The Santee-Cooper lakes, being relatively shallow and highly indented, would

provide the vast lateral expanses of water where fish may spawn, where plankton, indispensable to aquatic life, can develop in profusion, and where native cereals that serve as wildfowl food can find a luxuriant growth."

This observer, of course, cannot judge the feasibility of the Authority's plan. A great many biologists give it little chance of succeeding; others are of the opinion that it will. If it does, it should compensate for a measure of loss in environ-

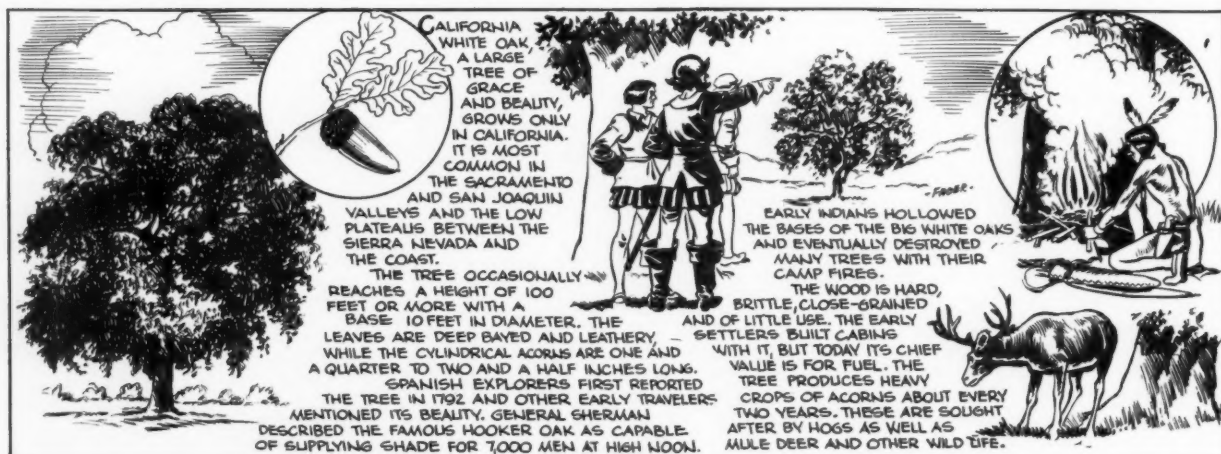


"The Rocks," one of the old plantation homes in the Santee basin, destined to be destroyed by waters backed up by the Santee dam

ance in wildlife and wildlife environment in the great delta region, what does the South Carolina Public Service Authority propose to do about it? Factually, nothing, except to send as much fresh water over the Santee dam as possible, for the Authority will have no jurisdiction over these delta lands.

But on the 165,000 acres to be acquired above the dam sites, a "compensation" plan is contemplated. Said a spokesman: "The wildlife that exists in the area will

TREES AND THEIR USES—No. 45—CALIFORNIA WHITE OAK



ment and wildlife anticipated in the delta region; if it fails, the wildlife situation in the region may reach tragic proportions.

Much has been made over the fact that in the neighborhood of a thousand families, involving from 2,500 to 3,000 people, of whom about four-fifths are said to be negroes, will be flooded out of the Santee and Pinopolis basins when the two great lakes begin to form—that their schools and churches and their ancient graveyards will be destroyed along with their homes and property. There is no doubt but that this phase of the Santee-Cooper development could be written as a human tragedy if one would look at it through the glass of tradition. For in and around this great coastal region much of the early history of South Carolina was written; from it was gleaned much of the wealth that made Charleston a great seaport, wealth from rice, indigo and cotton. But the Santee country of today is not the agricultural treasureland of yesterday. Rice and indigo are commercially things of the past, and cotton has failed to return to the region even a vestige of its former economic independence. The once proud plantations still exist, but not in the manner of a century past. Many have been acquired by sportsmen as private hunting preserves.

These old places the Authority will purchase. But for the smaller holdings of the more than 2,000 negroes in the region, it will embark upon a program of resettlement—a program which, to this observer, is far too fantastic for achievement. For it is proposed to transplant more or less intact whole communities, the ancient graveyards included, to greener fields, where new homes, new churches and new schools will be built, simulating as far as possible the environment of the old locations.

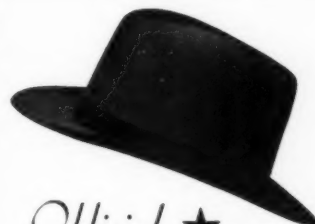
But whatever the destiny of these people, the Authority visualizes in the Santee basin "a project in conservation for the benefit of all the people of South Carolina and for the improvement of their health and welfare and material prosperity." It looks upon the millions of dollars being spent in its achievement as adding wealth to the entire state; it considers its industrial aims as promising greater employment opportunities, a more acceptable economy, especially for youth. It sees in the two great lakes to be created new recreational advantages for the people of the Low Country, for the people of the entire state. Plans are now under way for the development of extensive facilities, including hunting and fishing, when the reservoirs reach their eventual shore line. There is the matter of health betterment in the coastal plain through malarial and other health control features, for which competent technicians have already been engaged. And there is beautification through selective tree planting and other landscaping around the borders of the lakes, to meet spiritual needs. Modern conservation, this is called by the project's sponsors, in which the design of a bountiful nature is remodeled to fit the pattern of a changing world.

How near will it come to realization? Were it possible to eliminate from the

scene the many political touches that were put into its making or at least to determine the exact nature of its place in the political scheme of things, it would not be difficult to weigh the many factors involved on the conservation scales. If, for instance, it could be definitely known that the battle the project won in Washington was achieved wholly on the merit of its purposes and not by political horse trading, as is maintained in many quarters, it would be relatively easy for the conservation mind to say, without prejudice and without fear of being deceived, whether or not such resource losses that are bound to occur as the project develops will, in reality, contribute in the long run to the welfare of the people of South Carolina.

It is no secret that two government agencies, the Forest Service and the Biological Survey, disapproved of the project for reasons having to do with their respective interests. Nor is it a secret that Secretary of the Interior Harold L. Ickes disapproved of it, and let his feelings be known to President Roosevelt, who has sponsored the project from the start. On the other hand, the Federal Power Commission supported the President, as did the PWA and the WPA.

So may be concluded the story of the much debated Santee-Cooper hydro-electric and navigation project—for the time being, at least. No doubt but that in the days to come, the conservation issues that are now so highly controversial will be revealed in their true light. If the project fails it will in all probability go down in history as a modern tragedy in wasted public funds and resources. If it succeeds, if it is able to achieve the complicated program set for it, it is entirely possible that it will have cradled a new conservation concept in which man and the fruits of this good earth are enjoined in a design for better living.



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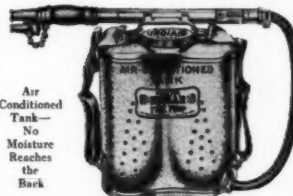
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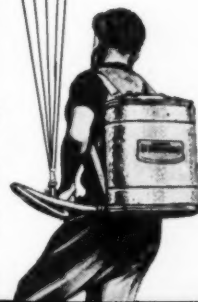


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A BIG GAME CENSUS

By CLELAND VAN DRESSER



MORE THAN 5,916,095 big game animals roam the wilds in the United States today, according to the Bureau of Biological Survey which recently concluded a count of our large wild animals that is unparalleled in the history of this country. Naturally the Biological Survey, and its field personnel, did not do this stupendous job alone. For three months, starting at the close of the 1938 hunting season and continuing until March of the present year, field men of the federal Forest Service, Park Service and other conservation units of the Departments of Agriculture and Interior cooperated in surveying mountains, plains, valleys and deserts in an endeavor to determine as accurately as possible what the wildlife population is of these United States. Assisting in the work were rangers of state parks and field personnel of the game and fish commissions of practically every state in the Union.

Of what avail is this nationwide count of wild animals, one might ask. The demerits of forest, prairie and mountain are worth considerably more than a billion dollars a year. Hunters and fishermen annually spend that amount for guns, equipment, gasoline, tires, state licenses and other appurtenances incidental to the sports of shooting, photographing, and angling. And even in these days of federal spending, assets that yield a billion dollars a year are worth checking on.

The survey revealed interesting facts. In some regions big game is on the increase, while in others the reverse is true. On the optimistic side, deer, elk, bear and buffalo stand out. The deer population,

the inventory shows, has increased greatly in recent years, especially in the East and Middle West.

A few decades ago if one saw a white-tailed deer in Pennsylvania, the newspapers of the state would have headlined the fact. Today the presence of white-tailed deer in Pennsylvania is almost commonplace. According to the Biological Survey, there are 773,000 in the state and Pennsylvania ranks second in point of numbers. It is exceeded only by Michigan, in which more than a million of these highly prized game animals were recorded by the Bureau of Biological Survey. The Forest Service reports there are 25,000 more deer on its lands in Michigan than there were a year ago, which gives some idea of the rapid increase. The total number of white-tailed deer in the United States, as estimated by the Biological Survey, is 3,453,526, with a large part of them in Michigan, Wisconsin, Minnesota, Pennsylvania, New York and Maine.

As far back as 1909, Ernest Thompson Seton predicted that the end of the grizzly bear as a wild resident of forest and mountain was then clearly in sight. For once the eminent naturalist was wrong, for these shaggy bruins still roam the uninhabited regions of Montana, Colorado and Wyoming. Their numbers are estimated to be considerably in excess of 1,000. Although their range has been drastically reduced by the inroads of civilization, livestock raising and industrial advancement, the grizzly is not destined for immediate oblivion provided suitable conservation policies are carried out.

Good news for hunters and nature lovers alike is the report of the Biological Survey on black bear. These animals are definitely on the increase. Last year California led in numbers of black bear, with Washington second. The current survey reverses the order of precedence by 1,000. However, each state has more black bears

than a year ago. Oregon and Missouri likewise show advance in perpetuating this species. The range of the black bear is almost unlimited. He may be seen consorting with alligators in the Everglades of Florida — eating blueberries in Maine and robbing food caches in Washington. His numbers for the country as a whole are believed to be in excess of 100,000.

Although the buffalo (American bison) will in all probability never be re-instated as a game animal, he is far from extinct. In fact, he may today be found in parts of the country he never frequented before the white man fought the Indian on the western plains. There are buffalo today in thirty-eight states, even including the District of Columbia. True, a good many of them are in national parks and municipal zoos, but there still is a herd of about 400 of these magnificent beasts living in their natural habitat in a Biological Survey refuge in Montana, and there is a thriving herd in Alaska while reports from Canada indicate that a herd of completely wild buffalo has been discovered north of the Minnesota line.

Paralleling the situation of the black bear and white-tailed deer, the elk is far from becoming extinct, his numbers having steadily increased during the past several years. Twenty-five years ago Ernest Thompson Seton estimated there were but 46,000 of them in all North America. The Biological Survey now estimates the number at 228,871 in the United States alone.

Looking at the gloomy side of the wildlife pictures, the plight of the woodland caribou is indeed sad. Despite exhaustive search, field men of the various federal and state conservation departments could find but sixteen in the United States. Twelve of these live in Minnesota on a large state refuge and the remaining four are in national forests in the state of Washington. Originally the range of the caribou extended from the Atlantic to the

Pacific along the area bordering the present Canadian line, and herds in the United States were estimated to run into the millions.

Moose, too, are hard pressed, although there are still enough of them left to insure continuance of the species, providing, as in the case of the grizzly bear, they are given adequate protection. The total of these animals is estimated at 16,375, Wyoming leading with 7,439, and Minnesota next with 3,649. Lesser numbers are still found in Montana, Maine and on Isle Royale in Lake Superior.

Rocky Mountain Bighorn sheep and goats seem to be taking it on the chin, figuratively speaking. According to the Biological Survey, there are but 11,367 sheep still in existence throughout their entire range. The fact that they are decreasing is made evident by the report of the Forest Service last year which stated there were 9,000 of these graceful creatures on the national forests alone—which includes only part of their range.

Mountain goats also have declined in numbers except in the State of Washington—the reason being that there is inadequate protection and not enough food for them to subsist on during the winter. When snows and cold drive the goats down from the mountains, the available food in the lower altitudes has already been devoured by domestic sheep and cattle. To remedy this situation, the Biological Survey and the Forest Service are endeavoring to acquire more land which will be suitable for both Bighorn sheep and mountain goats.

The antelope of our western states, threatened with extinction a few decades ago, are increasing, according to the Survey's inventory. To date, the count is 186,114, with the number constantly on the rise. Wyoming harbors more antelope than any other state, while Oregon is a close second. States that are "also rans" are New Mexico and California.

Government to Aid Forest Industries

The Forest Industries Conference, a new departure in the relation of industry and government, was announced last month as a functioning body after several months of formulative work. The conference met at the invitation of Secretary Henry A. Wallace, in line with a plan developed by the Secretaries of Interior, Agriculture, and Commerce. The purpose of the Conference was announced as follows:

"Composed of forestry and other officials of several Government agencies and representatives of industry, the Forest Industries Conference has for its basic purpose correlated assistance in the sound economic development of forest products industries through two major approaches:

"First, to eliminate duplication of effort on the part of Government agencies concerned with forestry and its related industries; second, to furnish the industries an opportunity to present their

Mule deer, a much larger animal than the white-tailed species, number 1,489,427. They are found exclusively in the West.

The black-tailed deer is found in only three states, California, Oregon and Washington. California has more than twice as many as the other two states combined—264,390 of the 370,385 total.

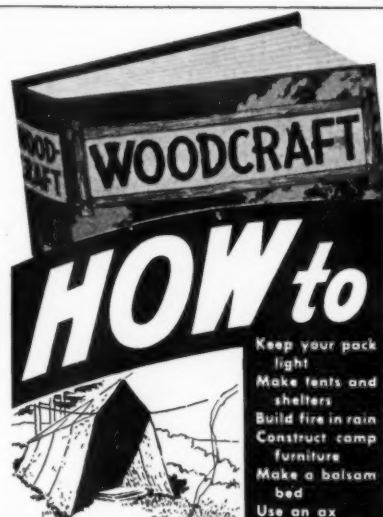
Despite having a difficult time in keeping some of our own forms of large game animals alive in any considerable numbers, a foreign species has been imported that is thriving. There's a bit of history behind this animal. Most of us are familiar with the British sport of "pig-sticking"—spearing wild boars in India. It is considered a dangerous pastime, as the wild boar is anything but a passive beast. He is fearsome and can put up a savage battle.

Some fifty years ago a group of wealthy sportsmen of Tennessee and North Carolina imported some European wild boars and released them for the purpose of hunting. The boars multiplied and in addition mated with semi-wild domestic stock and the resultant offspring through the years have become just as ferocious as their forebears. Many a luckless hunting dog has been disemboweled by these creatures. Today the wild boar (not to be confused with the razorback hog) flourishes in the mountainous area of Tennessee and North Carolina. Furthermore, he has been successfully introduced into Mississippi, New Hampshire and California.

To sum up the quota of big game in the United States, the Biological Survey estimates the number at 5,916,099. Fifteen species are included. Of the total, state and private lands support the largest number—3,569,557. The national forests come second with 1,790,000, far greater than any other federal division. The balance is divided among Biological Survey refuges, areas of the National Park Service, the Public Domain, Indian reservations and various military reservations.

viewpoints, both as they involve the development of industry and its relation to forestry and as they involve the Governmental action in related fields. The Conference proposes to attain these objectives through the use of discussion methods at a series of monthly meetings in which Government officials and representatives of the industry will take part.

"A committee to direct the activities of the Conference includes Dr. Wilson Compton, Henry Bahr and W. R. Burt of the National Lumber Manufacturers Association; H. M. Brinkerhoff of the American Pulpwood Association; Charles W. Boyce of the American Paper and Pulp Association; Lee Muck and L. D. Arnold of the Department of the Interior; E. W. Tinker, G. D. Cook and C. Stowell Smith of the Department of Agriculture; Ernest A. Tupper and Phillips A. Hayward of the Department of Commerce; and George M. Putnam and W. R. Ogg of the American Farm Bureau Federation."



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CREATING DEMANDS FOR WOOD

By M. H. BRUNER

"HOW CAN we preserve our timber markets?" is a question much discussed by lumbermen, timber dealers, and foresters. One answer is through methods of utilization, streamlined to fit the consumption demands of a progressively changing public. Unless this is accomplished, experience shows that timber products will be replaced more and more by modernized substitutes. Take, for example, the simple item of heating the house—certainly an important problem with each family. This personal problem was just too simple to attract the notice of those concerned in maintaining the use of wood as a fuel.

"In rural and semi-urban areas," we thought, "wood always will be used for fuel. Farmers will never be interested in spending good money for substitutes when they can get all they need from their own woodlands."

In the face of this type of thinking what has happened during the past decade? Many consumers of wood have demanded greater comfort in the home especially during the winter months, than the customary fireplace afforded. Consequently, they began to look to other heating devices — more modern in nature — and utilizing coal, oil, gas, and electricity. Many farmers changed to these substitutes not because they lacked sufficient fuelwood on their farms, but simply to satisfy the human trait that seeks comfort in the home. In other words, the farmer was willing to spend money for fuel because it gave him greater comfort than wood, even though he could obtain the latter for the labor of cutting it from his own woodland.

But fortunately for advocates of wood utilization this picture is changing rapidly. Improved automatic wood stoves have been developed within recent years that, it is believed, will do more to solve the heating problem in rural and semi-urban areas than any other type of device that has yet appeared on the market. Recognizing the practical heating problem existing, industry stepped in and developed inexpensive, efficient wood burners that

provide twenty-four-hour heat and may be the answer to a very important problem in thousands of homes.

One stove is very efficient because the draft is controlled by a thermostat that closes almost air tight, depending upon the temperature of the house. This permits practically complete combustion of the wood with little loss of heat through the flue. Farmers report that the stove

Carolina, for example, these stoves sell like "hot cakes." Last winter, where they were introduced in several new counties for the first time, as many as seventy-five sales were reported.

It means also that wood as a fuel will not be replaced by substitutes in many homes. To forest industries this is important if only from the psychological point of view. The lumber industry should guard jealously all attempts to replace any types of forest products by substitutes, however unimportant they might seem. This is one of the first rules of self-preservation.

And finally, it means that markets may be maintained, or even expanded, for inferior classes of trees. Lumbermen and foresters are continually looking for markets that utilize waste products from lumber manufacture, and also inferior trees in stands that should be removed for thinning purposes. Markets for these waste products reduce the costs of growing and manufacturing lumber. From all evidence available, these new wood burners will open up wider markets for this class of material. Many persons living in urban and semi-urban situations, as well as farmers, are using these stoves for heating purposes. It is reported, for example, that in and around the city of Columbia, South Carolina, more than 1,600 heaters have been sold. This has opened up a number of wood yards, and an unlimited number of farmers are profitably employed hauling wood to the city.

The burners use any kind of wood, but the hardwoods such as oak, gum, and hickory seem to give the best results. These are types of trees that frequently should be removed from the stand for thinning purposes.

As a result of the introduction of these wood burners, much comfort is added to the home, an important market for wood is maintained, and timber production costs are reduced through selling the by-products of forest industries. Certainly other more important timber marketing problems can be solved in a similar manner by expanding uses and giving the public something it needs.



Improved automatic wood burners have done much to solve certain heating problems and stimulate the use of wood as fuel

cuts their fuel bill fifty to seventy-five per cent.

But just what effect does this development have upon the lumber industry and the growing of timber? For one thing, it emphasizes that when the lumber industry and others interested in growing timber satisfy a public demand, their products will be accepted heartily. In South

SPECIAL FIRE PREVENTION NUMBER OF AMERICAN FORESTS AVAILABLE

To meet an unusual demand it was necessary to print additional copies of the April issue of AMERICAN FORESTS Magazine, devoted entirely to the subject of forest fire fighting and prevention. A few are still available at 35c a copy. We shall be glad to furnish copies to your friends, your children's school, or the library in your community, mailing them direct for you.

Proposed Sale of Timber in Superior National Forest Starts Criticism

A proposal by the United States Forest Service to sell five million feet of public timber in the Superior National Forest in northern Minnesota was the signal in August for criticism implying that the Service is not carrying out the intent of the Shipstead-Nolan Act of 1930. This act was sponsored and supported by the Superior-Quetico Council and other organizations throughout the country as a plan for preserving and protecting the scenic and recreational assets within that part of the Superior National Forest north of township 60 in Cook and Lake Counties and of a specifically described portion of St. Louis County. It wrote into law the principle of conserving the natural beauty of the shore lines of this lakeland for recreational use while at the same time permitting the economic use of the region as a whole under definitely prescribed restrictions.

Although there were no bidders for the timber advertised for sale, and according to the Forest Service it is unlikely that any sale will be made, the criticism nevertheless has raised question in the minds of numerous friends of the Superior-Quetico project if the Forest Service is carrying out the intent of the Shipstead-Nolan Act. On August 16th, O. L. Kaupanger, Secretary of the Minnesota Division of the Izaak Walton League of America, calling attention to the proposed sale and challenging the efficacy of the Shipstead-Nolan Act, stated:

"Until 1924, there were no roads in the Superior National Forest proper and all travel was by the time honored method of pack and canoe. It was then practically all wilderness, accessible only by water trails. Since then, however, the Gunflint Trail has been constructed from Grand Marais to Saganaga, opening the eastern half of the forest; the Echo Trail from Ely to Crane Lake, opening up the western half of the forest; the Fernberg Trail to the Kawishowa River, thence to Schroeder; the trail from Tofte to Sawbill Lake, and countless lateral branch roads designated by the U. S. Forest Service as so-called fire protection trails. Many of the latter can be used for motor traffic. Outside of this small strip of wilderness area, most of the forest has been logged off, much of it burned, and ribboned with roads. At any rate very little of it can be called untouched wilderness."

Commenting on this statement, the Forest Service points out that none of the roads or trails referred to are in the portion of the Superior National Forest designated by the Shipstead-Nolan Act and that although the proposed sale would have fallen within the area specified by the act, its consummation would be in conformance with the provisions of the act, which permits the sale of timber in

the region under specific restrictions as regards the location of camps, temporary roads, banking grounds and landings. The Forest Service is authorized to sell timber within the back areas, but the shores of lakes or streams in general use for boat or canoe travel may not be logged within a distance of 400 feet, except in particular instances where the administration officer has justifiable reasons to vary the distance. The law further requires that in no case shall logging of any timber other than that which is diseased, insect infested, dying or dead be permitted closer than 200 feet to natural shore lines of streams and lakes. The act further prohibits the alteration of the natural water level of any lake or stream within or bordering upon the designated area, unless specifically authorized by a special act of Congress.

That the area of nearly 1,000,000 acres would be maintained and administered as a primitive roadless area was given assurance in a statement of policy to which the Quetico-Superior Council gave its approval on July 7, 1937. This statement asserts that "no roads will be constructed except purely temporary roads incident to the removal of forest products. Such temporary roads will be built and maintained only at the time forest products are actually to be removed."

According to the Forest Service, this roadless policy has since been in effect not only within the entire area encompassed by the Shipstead-Nolan Act, but also in some of the adjoining area to the south.



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Quail to Order

(Continued from page 545)

accustomed to the workers who feed them. But let a worker change from his customary dark overalls to a white shirt, and the friendship is pretty badly strained. Otherwise the birds can be won via their stomachs. They are always interested in eating. Anyone who feeds them regularly soon becomes a good friend. And when that function is accompanied by a cheerful voice and sympathetic personality there is an exceptional bond of friendship established with the little feathered folk.

Among themselves the birds have pretty definite ideas regarding friendship and fellowship. Growing up together in one pen, they get along fairly well. But if a bird is once taken out of a holding pen, that bird immediately becomes an undesirable alien and if put back in the pen, it will be immediately picked to death. Hence birds that have gotten out or been taken out of the holding pens are permitted to wander about the grounds. They make no attempt to fly away. Instead, they stay around and take pot luck at getting fed. Ultimately, these birds are rounded up and put in a common pen.

For some reason yet unknown, the birds sometimes decide to pick on a luckless one. If blood is drawn, all the birds in the pen will immediately insist on their share of picking until the unfortunate victim is mortally wounded. The picking may be at the neck, or on the back or, again on the skull. And sometimes a bird has been picked while a mere chick but not to the mortal point. Weeks, or months later the old wound is discovered by another bird who starts picking, whereupon others join in. This picking is a serious matter, and sometimes is the greatest single factor of loss.

Protected from its enemies and even from itself, the northern bobwhite increases and multiplies on the hospitable quail farm. Eventually they are shipped in pairs in a special crate to their new and native home, to live in the manner of their forebears. Thus many game preserves are being stocked and restocked to provide hunters with the thrill that goes with the shooting of these game birds.

MOUNTAIN ASH

A flaming dash of color high above

The trail I'm walking lures me on. I rush
Up steep inclines. I fight my climbing way
Through chaparral and manzanita brush
To pluck this fiery beauty from its tree.
Just one more turn, the end of my mad dash,

And yet . . . how can I wantonly destroy
The flaming beauty of the mountain ash?

—Cristel Hastings.

REPORT ON FEES AND CHARGES FOR PARKS COMPLETED

The report of the National Park Service on its study of the question of fees and charges for public recreation, which it was requested to make by the American Institute of Park Executives in 1938, has been completed, according to Secretary of the Interior Harold L. Ickes.

The report makes no recommendations, but concludes from information given by 238 park administering agencies representing 201 governmental units in all parts of the United States, that, where it is in force, the practice of imposing fees and charges is regarded only as supplemental to ordinary budgeting procedure except in rare instances almost exclusively confined to "certain state and county or metropolitan agencies." These answers to a questionnaire filled out after personal consultation with National Park Service representatives reveal that "income from fees and charges represented only nine per cent of the total funds available for expenditure by the agencies reporting this information for 1937, while over the ten-year period from 1928 to 1937, inclusive, the receipts from fees and charges bore a relationship of sixteen per cent to total expenditures." The majority of park and recreation executives, who consider fees and charges only as incidental to other means of financing, regard the practice as a "necessary means of control in the case of certain facilities and services," it is concluded.

The report points out that judicial opinion increasingly supports the view that conduct of recreation programs and management and maintenance of recreation facilities is a governmental function, and says: "It is because of the danger that the imposition of fees and charges will defeat the purpose for which recreation agencies are established that so much care and consideration must be given to this subject. In the present practice of recreation agencies, with a few exceptions, the great preponderance of recreation services are rendered without direct charge to the citizens. In fact, the percentage of 'no charge' activities and facilities is seventy-six for all agencies, while the 'all charge' activities amount to only nine per cent, and four per cent are let out as concessions. The remainder are charged for at certain times or some facilities for a certain activity are free while other facilities of the same kind are charged for.

"A few agencies administer their areas and facilities in such a manner that it is practically impossible for the citizens to obtain the advantages of the program without paying a direct charge. This is accomplished by the charging of entrance fees to areas or by charging parking fees to all parking areas. In this motor age, many parks are removed a considerable distance from the bulk of the people and can be reached only by automobile; therefore, the compulsory parking charge is tantamount to an entrance fee. Road tolls accomplish essentially the same purpose."

ASK THE FORESTER

Forestry Questions Submitted to The American Forestry Association, 919 - 17th St., N. W., Washington, D. C., Will Be Answered in This Column . . . A Self-Addressed Stamped Envelope Should Accompany Your Letter.

QUESTION: While reading page 327 of the June, 1939, issue of AMERICAN FORESTS my attention was attracted to the account of the stream pollution bill (S. 685) recently passed by the Senate.

Exactly what constitutes a "navigable river"? Does such a provision include the tributaries and lesser streams on the watersheds of navigable waters?—B. R. D., Tenn.

ANSWER: A navigable river, in accordance with several excerpts from court decisions assembled by the National Resources Planning Board, is one which is navigable in fact. According to one court decision, "the test of navigability of a river is whether it, in its natural state, is used or is capable of being used as a highway for commerce . . ." in the customary modes of trade and travel on water." Federal aid in the form of grants-in-aid or loans for the construction of necessary treatment works would be available for the treatment of sewage or wastes discharged "into navigable waters of the United States or streams tributary thereto," in accordance with Section 5 of the bill as passed by the Senate, and awaiting action in the House.

QUESTION: Is there any difference between the "elm tree beetle" which historians tell us caused the death of the Washington Elm at Cambridge in 1924, and the Dutch elm disease, which we are now trying to eradicate?—E. T., Pa.

ANSWER: The "elm tree beetle," more generally known as the elm leaf beetle, a long established insect pest of elms, damages the trees by eating the leaves. The Dutch elm disease is a fungus which is carried from one tree to another by a bark beetle introduced from Europe which does little damage to vigorous trees, but whenever it leaves a Dutch elm diseased tree and goes to feed on a healthy elm it carries within its body the spores which infect the healthy tree. The fungus thus introduced kills the newly infected tree, and makes it a source of further infection for other healthy trees.

QUESTION: Are any special methods needed in growing hickory nuts?—F. H. T., Wisconsin.

ANSWER: The culture of hickory trees does not differ materially from that of other trees under ordinary conditions. The trees usually make a better growth, come into bearing earlier, and are more profitable if grown on so-called "bottom land" which has deeper and more fertile soil than uplands.

They come into bearing at ages of from twelve to fifteen years, and may reach great size and age. Little spraying is required, but occasionally walnut caterpillars attack hickory trees.

State Foresters Meet in New York State

State vs. Federal Responsibilities Discussed by State Foresters

Representatives of thirty-three state forestry and state departments of conservation constituting a major portion of the Association of State Foresters met at Lake Placid, New York, on October 2 to 5. The occasion was the 20th annual meeting of the Association of State Foresters. Chief among the discussions was a defense of the cooperative forestry program as developed under the Clarke-McNary law of 1924, and an attack on what many considered a policy of federal domination under the Norris-Doxey cooperative farm forestry act of 1938. Administration by the Soil Conservation Service of the more recent law was caustically cited as an example of federal intervention within the legally established field of a state agency. The Association voted to request the Department of Agriculture to revise its program of administration so as to more definitely center responsibility within the offices of the State Foresters. No action was taken in regard to the Forest Restoration Bill.

The opening meetings, held at the Lake Placid Club, included an address of welcome by Commissioner Lithgow Osborne of the New York State Department of Conservation, a report by President Rutledge Parker, State Forester of Montana, and reports by the several committee chairmen. The forest restoration bill as introduced by Senator Walsh of Massachusetts and Representative Fulmer of South Carolina was explained by F. A. Silcox, Chief of the Forest Service, and E. W. Tinker, in charge of state and private work, and was criticized by Perry W. Merrill, Vermont state forester.

Field trips included a tour of the Memorial Highway to the top of Whiteface Mountain, inspection of several public campsites, and the forest plantations on lands within the State Forest Preserve.

For the coming year O. A. Alderman of Ohio was elected President, with Perry Merrill, of Vermont, Vice-President, and D. G. Durrell of Oklahoma, Secretary-Treasurer. The Executive Committee consists of these three officers with retiring President Rutledge Parker of Montana and H. A. Smith of South Carolina.

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BRACING



AT THIS season of the year it seems desirable that we give some consideration to the structural condition of our trees so that they may face the winter winds and sleet storms which lie ahead without fear of injury.

One of the most important phases of shade tree care, and one frequently neglected, is proper bracing to prevent splitting and consequent structural and esthetic damage to valuable trees. A rotten trunk is often the result of decay which started in the upper parts of the tree after a large branch was broken off. Proper bracing may not only prevent infection but actually prolong the life of a tree by eliminating the danger of splitting which is so often followed by decay.

A tree may require cabling when others, which have protected it from winds, have been removed. V-shaped crotches are prone to split because of their construction and often need strengthening. Trees which are already somewhat decayed usually contain one or more branches which call for mechanical support and, needless to say, crotches which have already started to split should be pulled together and strengthened so as to avoid a complete break.

Certain species are more prone to split than others. Fruit trees, silver maples, box elders, elms, lindens, willows and sugar maples are among the worst offenders and often require strengthening.

Judgment, experience and training are needed to determine the extent and type of bracing needed. If a tree can be observed under stress of wind and ice storms, the problem becomes simplified. Since cabling should be a preventive rather than a corrective measure

it is better to err on the safe side than to take a chance.

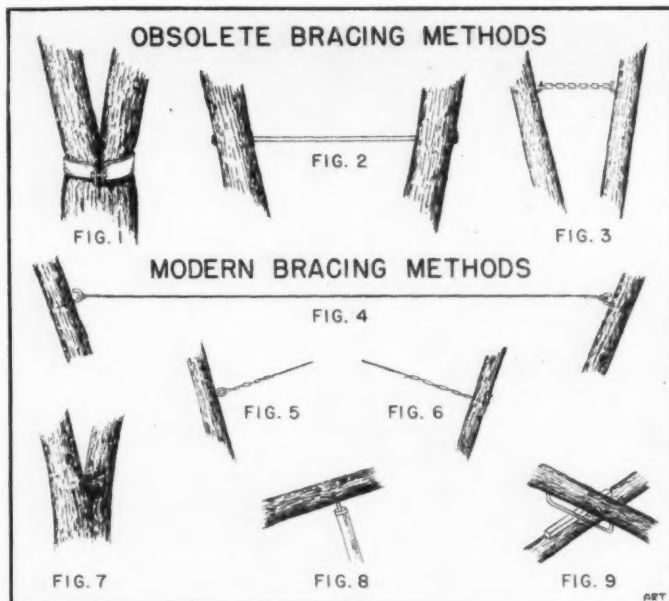
As a matter of pure economy, cabling is frequently justified. I recall a tree in Westchester County, New York, for which bracing had been advised for several years. This was not done. A few days after the last report was made a high wind swept the valley and the tree—a magnificent sugar maple with a trunk diameter of over four feet—was split beyond hope of ever regaining its majestic beauty. The cost of merely treating the surface of the resulting wound was over four times the previously estimated expense of installing a couple of cables. A few dollars, invested in materials and time, will often save trees worth thousands.

Methods of tree bracing have changed in recent years like so many other things. Iron bands, chains, long rigid bars and so on are products of the past. Modern

arborists use more efficient materials such as eyebolts, lag hooks, flexible copper or steel cable, and threaded screwrod.

A few years ago, when the writer was engaged in municipal forestry, attention was called to a large city-owned elm tree around which iron bands had been placed a long time ago. These bands had broken and the tree was in a dangerous condition. After removal of the worthless bands, the tree was braced with steel cables but the abutting property owner still was not satisfied. Her father had installed the old bands when she was a little girl and the appearance of strength had satisfied her that the tree was safe. In order to ease her mental anguish, the bands were replaced loosely around the tree and eased up occasionally to prevent constriction. Thus everyone was satisfied and the tree made safe at the same time.

The reasons for changes in bracing technique are many. The old iron collar (Figure 1 in illustration on this page) constricted the tissues and retarded the sap flow to the limbs, thus inviting death and decay and defeating its purpose. Often the old bands broke under stress and became entirely useless. The heavy chains (Figure 3) and rigid iron bars (Figure 2) are also antiquated now. The chains were ugly, short lived, and difficult to install, while the iron bars were equally cumbersome, expensive, frequently noisy and often split the trees by their inflexibility. This criticism of iron bars refers to those placed high up in the crowns and should not be interpreted as frowning on the crotch bracing now accepted as the most efficient way of rigidly bracing split crotches when this is necessary for cavity treat-



ment, etc. Modern bracing of trees is based upon the need for a system giving maximum support, economy, durability, flexibility, inconspicuousness, and ease of installation with minimum damage to the tree. These conditions are all fulfilled in present-day practice.

Flexible copper or steel cables of various sizes take the place of chains and bars (Figure 4). Instead of being wound around the limbs to be braced, the cable is spliced to eyebolts or laghooks inserted in the limbs. The cable is protected from wear by metal thimbles inside the splices. Thus, the amount of cambium which is injured is decreased from upwards of a hundred per cent to less than five per cent. In reality, little or no actual damage is done to the limb, since callus growth soon forms over the small wounds and seals them entirely.

As a general rule, cables are placed high in the tree, thus making use of the physical law of the lever and the fulcrum. Light materials can be used for quite heavy tasks when this principle is employed.

In the case of fruit trees, such as apples and peaches, it is often desirable to support major limbs instead of pruning them back or removing them. Small diameter cable may be used for this purpose but in many cases it is more practical to use single strand material such as piano wire, fence wire, or even common baling wire. If ungalvanized materials are used, paint should be applied to prevent rust.

Sereweyes (Figure 5) may be used to fasten the wires to the limbs when light loads are to be supported but often it is simpler to drill a hole through the limb, run a wire through and back, and splice by twisting (Figure 6). A nail may be inserted in the loop, parallel to the limb, to prevent the wire tearing through. A slit in the bark should be prepared to receive this nail so that the wound will heal easily.

Whenever wire bracing of fruit trees is undesirable, props may be used to advantage to support fruit-laden limbs. A forked stick is convenient as a temporary measure but if a permanent prop is desired, a pole having an iron bar in the end may be made (Figure 8). This is inserted in a hole in the underside of the limb to be supported and, if a proper fit has been obtained, the callus growth will soon hold the pole firmly so that movement of the limb will not disturb it.

As mentioned previously, it is sometimes desirable to provide rigid bracing for weak or split crotches. This may be accomplished by inserting bolts or lengths of threaded steel or duralumin rods through the limbs forming the crotch (Figure 7).

An interesting phase of bracing is that of holding rubbing limbs together or apart. Several methods are possible; the simplest being to run a bolt through both limbs at the point of intersection. Sometimes buffers of wood or iron are used to prevent rubbing. In this case, it is desirable to have one of iron and the other of wood to prevent possible annoyance by squeaking (Figure 9).

NURSERY STOCK LAWS AS TRADE BARRIERS

Nursery stock laws for the forty-eight states are summarized in "Barriers to Trade Between States," a recent publication of the Marketing Laws Survey of the Works Progress Administration. Regulation and control of interstate traffic in nursery stocks is a proved necessity for the protection of horticulture, forestry, and general agriculture, but the publication calls attention to the fact that "barrier" practices may be used by "administrative agencies whose broad discretionary authority permits them to employ various types of 'police' regulatory legislation as instruments to restrict trade between the states."

"How many thousands of shrubs are destroyed or ruined in quarantine," concludes the report on General Nursery Stock Laws, "how many are legitimately excluded because of genuine need to prevent the spread of pestilence, rather than to protect local interests, is information which is not revealed by a mere recital of the law on the books."

AMERICAN FORESTERS TO MEET IN SAN FRANCISCO

The 39th annual meeting of the Society of American Foresters will be held in San Francisco November 23, 24, and 25, 1939. Headquarters for the meeting will be the St. Francis Hotel. A program of nationwide interest has been arranged with a central theme of "The Next Thirty Years In Forestry." Well-known speakers representing federal agencies, the states, and the forest products industries will lead the discussions of prospective developments in the forest conservation field.

The date of the national meeting has been selected to allow visitors to attend the Golden Gate Exposition. Field trips to the redwood region, lumbering operations, and various other places of interest in California will be available to visitors.

A cordial invitation is extended to all foresters and others interested in forestry and in the conservation movement to attend this national meeting.

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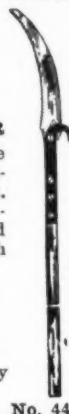
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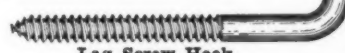
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WOODCRAFT, by Bernard S. Mason. Published by A. S. Barnes & Company, New York City. 580 pages. Illustrated. Price \$2.75.

The whole story of woodcraft between two covers, — written for woods-minded people of all ages. The author — a past master in camp work for over twenty years — lectures on campercraft, woodcraft and Indian lore and he has packed his book full of these things, accompanied by the symphony of bird songs and other lovely sounds that echo from the woods to his pages.

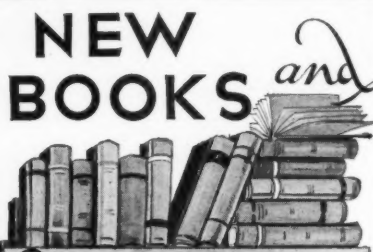
RAINFALL AND TREE GROWTH IN THE GREAT BASIN, by Ernst Antevs. Published jointly by the Carnegie Institution of Washington and the American Geographical Society of New York. 97 pages, illustrated with maps and graphs. Price \$3.00.

The author treats his interesting subject in two parts—the first covering rainfall fluctuations during the past one hundred years and the second, tree growth in its exact relation to rainfall. The first is broken down into five regions and the second into four sections, with a complete list of references and Index to the whole special and, in its field, illuminating work.

FIELD BOOK OF ANIMALS IN WINTER, by Ann H. Morgan. Published by G. P. Putnam's Sons, New York City. 527 pages; illustrated. Price \$3.50.

This book answers all the questions as to how animals and insects meet the exigencies of the winter season. How they overcome the hardships imposed by the cold—finding food and shelter and adapting their lives to meet their difficulties is really an example to humans. To have followed their trails so persistently and successfully is a tribute to the author, who is professor of zoology at Mount Holyoke. There are nearly three hundred interesting illustrations and four color plates by Roger Tory Peterson.

570



OTHER PUBLICATIONS

A list of Selected Books on Forestry and related fields of Conservation is available to members of The American Forestry Association on request.

OF ANTS AND MEN, by Caryl P. Haskins. Published by Prentice-Hall, Inc., New York City. 244 pages. Illustrated. Price, \$2.75.

Again a book on the fascinating subject of the ant—that small organism which has so intrigued thoughtful people since the dawn of recorded time. Long acquaintanceship with living ants has brought the author conviction of the many parallels between their social lives and those of men, and the fact that in these may lie a deep fundamental significance. In this book, he points out the more obvious of these analogies, and offers evidence reflecting important light upon the structure of human society. He pictures their solution of such questions as war, reproduction, sustenance, security, democracy and totalitarianism, and traces the rise of ants as a race, their varieties, the spread of their tribes over the earth, struggles for dominance and their whole influence in the scheme of insect life. Mr. Haskins has collected and studied ants in the American, African and Asiatic tropics and has kept more than a hundred living colonies under continual observation in artificial nests.

SECHRIST'S FORESTERS FIELD MANUAL, by W. C. Sechrist. Published by the Craft Press, Fayetteville, Pennsylvania. Vest Pocket Size. 128 pages. Price \$1.50.

Tables, formulae, and concise information are arranged in reasonably logical order in this little book. They should prove helpful in a variety of forestry and general field work, from timber estimating and road construction to nursery practice and insect control. With a table of contents and a classified index, the book is reasonably easy to use and its small compact size permits carrying it in a vest or shirt pocket.

Forest Trees of Missouri. Identification and characteristics, illustrated. Conservation Bulletin No. 20, State Conservation Commission, Jefferson City, Missouri — U. S. For. Service collaborating. Price 10 cents.

A Forest Policy That Goes All the Way Through, by W. B. Greeley. West Coast Lumbermen's Association, Seattle, Washington.

Reseeding Range Lands of the Intermountain Region, by George Stewart, R. H. Walker and Raymond Price. Farmers' Bulletin 1823, For. Ser. of U. S. Dept. of Agr. Supt. of Docs., Wash., D. C. Price 5 cents.

Conservation of Natural Resources — A community service program of The American Legion. The National Americanism Commission, Indianapolis, Indiana.

A Microscopic Study of Coniferous Wood, by Hereford Garland. Reprinted by the American Creosoting Company from the annals of the Missouri Botanical Gardens.

Forest Resources of North Central Georgia, by A. R. Spillers. A Progress Report by the Southern For. Expt. Sta., New Orleans, La. Release No. 44.

Why Community Forests? For. Ser. of the U. S. Dept. of Agr. Govt. Printing Office, Washington, D. C.

Forest Improvements by the CCC. Civilian Conservation Corps — forestry divisions. U. S. Govt. Printing Office, Washington, D. C.

Effects of Fire and Cattle Grazing on Longleaf Pine Lands, as Studied at McNeill, Mississippi, by W. G. Wahlenberg, S. W. Greene and H. R. Reed. Tech. Bull. 683. U. S. Dept. of Agr. Supt. of Docs., Wash., D. C. Price 10 cents.

Weather and Plant Development Data as Determinants of Grazing Periods on Mountain Range, by David F. Costello and Raymond Price. Tech. Bull. 686. U. S. Dept. of Agr. Supt. of Docs. Price 10 cents.

American Southern Pine, by W. LeRoy Neubrech, Forest Products Division, Dept. of Commerce. Trade Promotion Series No. 191. Supt. of Docs., Washington, D. C. Price, 10 cents.

American Southern Cypress, by W. Leroy Neubrech (as above).

Woodlands of Kansas, by E. R. Ware and Lloyd F. Smith. Bull. 285 of the Agricultural Experiment Sta., Kansas State College, Manhattan, Kansas.

The Junior Tree Warden. Published by the Dept. of Education, Newtown, New South Wales, collaborating with the Australian Forest League. Price \$1.20.

The Idaho Forester. Published annually by the Forest School of the University of Idaho, Moscow, Idaho.

Forest Insect Conditions in Oregon and Washington 1933-1938. U. S. Dept. of Agr., For. Insect Lab., Portland, Ore. **Volume Distribution in Saw-Timber Types in the Ponderosa Pine Region**. For. Surv. Research Notes No. 28. Pac. N. W. For. and Range Expt. Sta., Portland, Oregon.

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A Forest Policy That Goes All the Way Through

(Continued from page 552)

forester, I hope that the federal program may leave maximum opportunity for the free play of private capital and private initiative in timber cropping. But I ask for a national forest policy that goes all the way through. I ask for a policy which recognizes that forest crops must be harvested and marketed at a living profit for those who grow them.

We realize the limitations upon the power of government to create markets for industry. We do not expect Congress to pass a law establishing a minimum per capita consumption of lumber in the United States. But if the years of *laissez-faire* are behind us and national planning for a forest-growing country is the order of the day, let's deal with realities. Let's see the job through—in lumber use and marketing research, in our tariffs and our foreign trade agreements, in the overseas shipping facilities necessary to meet foreign subsidized competition.

It is all right for forestry to occupy the pulpit on Sunday. But it should also be at work during the week in the daily sweat and grime of American business.

Take the matter of tariffs and foreign trade. The United States used to be the foremost lumber-exporting country of the world. Now it has dropped to fifth place, behind Finland, Russia, Sweden, and Canada. The Pacific Northwest has suffered far more from loss of exports than any other lumber-producing region in this country. In former years, foreign markets took from fifteen to eighteen per cent of our lumber cut, with a yearly trade volume of \$30,000,000 to \$35,000,000. These shipments overseas furnished employment for ten to twelve thousand forest and mill workers. But by 1938, our lumber had lost four-fifths of its former offshore business; and the most severe unemployment in the region was found in our tidewater sawmill communities.

This staggering loss of export markets is due partly to high labor costs; partly to war in the Orient; partly to the diversion of our former trade with British Empire countries to Canada—through the barriers of preferential tariffs. The reciprocal trade policy of the State Department has been unable to restore export markets for the timber crops of the Pacific Northwest.

It may have been too much to expect that our government could break down the preferential tariffs of Great Britain which have progressively closed that coun-

try to American lumber since the Ottawa Pact of 1932. But it was not too much to expect that a government which takes the forest problem of the United States seriously would at least protect our home market for timber crops until an equal volume could be sold abroad.

Nor was it too much to expect that a government devoted to the labor policy expressed in the National Labor Relations Act and the Fair Labor Standards Act would protect the wages and working conditions in the major industry of the Pacific Northwest from the competition of low-cost foreign labor, employed under a totally different conception of industrial relations than our own.

Each of these things the State Department has failed to do. Each of the Reciprocal Trade Agreements with Canada, in 1935 and in 1938, progressively let down the bars to the importation of lumber and shingles from British Columbia, to the injury of Pacific Coast forestry and Pacific Coast forest labor.

What are the practical results?

In three years preceding the first Canadian Trade Agreement, when the protection of domestic industry and labor was the policy of our Government, American exports of Pacific Coast woods, to British Empire countries, were double our imports of similar lumber from Canada.

In the three years of the first Canadian Agreement, from 1936 to 1938, this trade ratio was reversed. Imports of Douglas fir and West Coast hemlock from Canada were more than double our exports to the entire British Empire. Since the second Canadian Agreement took effect last January, lumber imports from Western Canada have been over three times the volume of our trade with British Empire countries.

The last Agreement also abolished the import quota on Canadian cedar shingles, which had formerly been fixed at twenty-five per cent of the American consumption. Thirty per cent of all the shingles we use may now be imported from Canada duty-free; and the very meager tariff on the remaining seventy per cent, which the Agreement stipulated might be imposed by Congress if it chose, far from offsets the lower wages and longer working hours in the shingle industry of Canada.

The State Department even pursued its theory of encouraging lumber imports to the point of abolishing the requirement

SPORTSMAN

It may be fun to shoot a deer,
A gentle creature on the run,
With soft brown eyes a-swim with fear;
It may be fun—
To pull the trigger of a gun
And watch the stricken creature rear
And fall; but as the bullet spun
And struck its mark I greatly fear
That I would wish the deed undone.
I guess I'm just a little queer—
It MAY be fun.

H. S. G. (Reprinted)

that foreign lumber be marked to show its country of origin. And thereby it largely destroyed the effectiveness of the law which stipulates that American-made materials be used in public construction.

It is not my purpose to attack the reciprocal foreign trade policy. It may be the appointed lot of the forest industries and forest lands and forest labor of the Pacific Northwest to be the sacrificial lamb, offered on the altar of appeasement to a foreign neighbor in return for trade benefits to other regions and other industries.

But it is my purpose to point out that these concessions are not the acts of a forest-minded government—of a government that takes its forestry seriously and gives timber culture the essential support of markets. It is beyond imagination that Sweden and Finland would so jeopardize their forest economy.

Let me cite another situation—one not to be laid at the door of the State Department. Put it rather on the doorstep of American newspapers, many of whom write stirring editorials on forest conservation and not infrequently condemn the forest owner for failure to reforest his cuttings.

The unwillingness of the United States to provide tariff protection for the use of our forests represented by the pulp and paper industries is a striking illustration of failure to carry a forest policy all the way through. Over two-thirds of the vast markets for wood pulps and paper in the United States are supplied by foreign imports, free of duty.

This is the paramount handicap upon the promising wood pulp industry of the Pacific Northwest—a handicap often accentuated by competitive prices of depreciated foreign currencies. Millions of feet of pulping woods are burned in slash fires because they cannot be utilized; and the same lack of markets holds back the pulp industry from taking its logical and needed place as a user of our timber crops.

The United States imported \$230,000,-

000 worth of paper and paper base stocks in 1938. And thereby arises this anomaly. The United States, one-third of whose soil is suited only for forest growth, with an alert public opinion demanding reforestation, with national planning putting more millions of acres into trees, with insistent propaganda for sustained timber culture, and with a critical problem of what to do with its timber crops when they are grown—this country imports two and one-half times the dollar volume of forest products that it sells abroad.

My purpose is to put the forest problem before you as a whole; and to point out its phases wherein public policy must aid the forest owner. The outstanding weakness in our forest program thus far is that it has been focused upon the growing of trees and has too largely ignored the use and marketing of trees. The one must complement the other. We need a national forestry policy that goes all the way through. It should not be limited to the Department of Agriculture. If it is to be progressively built up to meet the needs of land use, stable industry, and permanent employment, it must be a thorough-going policy, accepted and supported by all branches of government. We must learn to view our forest problem as we have long viewed the problem of agriculture. We must recognize that forest crops require the same kind of economic support which we have long accorded to farm crops.

The picture I would leave with you is that of the foremost industry in the Pacific Northwest—willing to do its part in the future economy of our region, an industry having the skilled labor and advanced technology to convert our forests into the commercial needs of the world—but held back by the cold, hard facts of economic insecurity. To the removal of this fundamental barrier to successful forestry, I would direct the efforts and planning, not only of our national leaders in forest conservation but of all agencies and departments of our government.

Ole Swan Svensen Settles Down

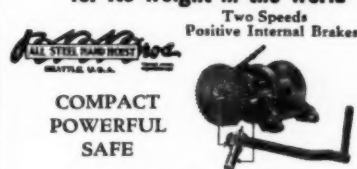
(Continued from page 543)

They were men of the woods, and never did take much of a fancy to complicated machinery. Pete did however point out that the best logs were often cut in four-foot lengths and placed in the veneer lathes. Some crooked and short logs were used in the small dimension mill and manufactured into stock for special products such as broom handles, shoe heels and chair legs. All edgings were sent out to the chemical wood plant; even the sawdust was used. As they left the mill and went towards the chemical wood plant, Swan could understand how the company could afford to bring in even the tops of the trees. Nothing was wasted.

Sitting on top of a small deck of logs in the mill yard Pete explained to Swan how all this had come about. Ten years ago the state of Wisconsin passed a Forest Crop Law which permitted anyone

owning forest land to pay less taxes each year, if he selectively cut his timber. Even though it would have to pay a yield tax the next time it is cut, the lumber company decided to make use of this law and hold its land and cut the timber selectively. A professional forester was called in to study the advantages of this and gave a favorable recommendation. The president of the company went to Europe to see how forests are managed in the old countries, where they have been doing this type of thing for hundreds of years. When he came back it was decided to cut less each year than the company had been doing and to do more work with the trees that were cut. The company later installed its veneer and small dimension plants. Now the outfit employs almost the same number of men with a 16,000,000 board foot cut than it did when it was

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cutting over 22,000,000 feet a year.

Swan absorbed this with interest. It was new to him but he began to see why this town seemed different. "Say Pete, how's this har business going to wind up, can they go on like this forever? I ha never he-ard o' anything like it but it shure looks like the life everlastin the old coun-tree preacher telled us about in Minne-sota."

"Well Swan, I don't know about going on forever, that would be what the govern-ment foresters call 'sustained yield,'" replied Pete. He explained that more than a year ago the federal forest service sent cruisers into the woods to take an inventory of what timber was left in this area. Those men estimated the timber in the winter on snowshoes and then went back to their office in Milwaukee and worked their estimates into a report. The report said that there was enough timber available to keep the mill going continuously with a cut of twelve million board feet each year.

"Yes, but yew sed they're a-cuttin sixteen million feet," Swan interrupted.

"Well, that's not so bad, they buy almost a million feet every year and the forest service has a little timber it will probably sell for select cutting to a firm doin' as good a job as Goodman. The timber will last a long time at this rate. My boys wouldn't see the end of it if they keep on cutting selectively. The only thing that worries me is that the company might go back to clear cutting five to seven years from now. If they drop the selective log-

ging then the timber will probably be gone in fifteen to twenty years. I may not be here then, but my boys will be and they'll be out of work, just like you and me way back in Minnesota," explained Pete.

"Yes, Pete, an that var a tough feelin fer a hard workin yak. I too often tank so these last ten yar," Swan muttered slowly, more to himself than to Pete. "You know wat, Pete," he said suddenly, "you'd tank the government would do something to help keep this town a-goin."

"Well, it is doing all it can to help Goodman," Pete replied, "But after all there's more to this problem than one town and one company. It takes in the whole lumber industry. State and county governments are affected by it. Very many towns and cities in America will be wiped out because of clear cutting, and a lot more people will suffer than just we who live here, unless it stops before the timber is all gone."

"Yes Pete, I guess yew waz right," Swan agreed, "But yew would tank dey would lurn that after all dese yar, and try to get together on sech tings. I'm only a dumb loomberyak but I kin see the gude o' keepin a town like this har a-goin. I taank I'll stiek around har an see how tings turn out. If I ever do settle down I dunt no where I kin find a better place fer to do it. Jes tank Pete, 'logging business forever,' why—that sounds just like a loomber yaks heaven."

"That's right Swan, that just the way I feel. I'd sure be glad to have you stay."

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The Coyote Marches On

(Continued from page 540)

additional word concerning the coyote's invasion might not be amiss. This animal was not known in Alaska prior to the gold rush of 1898. Seemingly a past master at adapting itself to environment modified my man, it followed the pack trains of the prospectors that pushed into the Klondike following the discovery of gold there. Prior to 1899 it was not known in the Stikine River area of British Columbia, but in the years 1899, 1900, and 1902 specimens were obtained from that section. At that time the coyotes seem to have followed the old gold-rush trail from the south, probably attracted by the food made possible along the route from the hundreds of dead or dying horses abandoned on it. During 1899 investigations revealed that coyotes had begun drifting northward from the Stikine River in British Columbia, and by 1929 they had reached Kokrines on the Yukon River, extending their range approximately thirty-five miles a year across country. The species next made its appearance along the Yukon-Alaska border between the years 1905 and 1912. From this point, during the following two decades, it gradually spread until it covered most of the Alaskan territory clear to Point Barrow, our northernmost tip of land. Thus today the coyote has a range extending from Point Barrow, Alaska, in the frigid north to tropical Costa Rica in Central America.

Between these two great extremes of climate and topography, it shows an amazing adaptability which makes it a difficult mammal to deal with when in conflict with human interests.

In many regions the coyote is not detrimental to livestock and in such places it forms an interesting and valuable part of the fauna. Its ability to live on carrion, rodents, small game, insects, and poultry, while at the same time being large and powerful enough to kill full-grown deer, domestic sheep, and young calves and hogs, makes it possible for it to exist over vast areas.

Coyotes breed once a year, mating generally late in January or early in February. The gestation period is similar to that in all the dog family, being approximately sixty-three days. The whelping season varies with latitude. Studies conducted of a large number of embryos seem to show that the young are born earlier in the North than in the South. The young are born in late March, April, May, and sometimes early June. The average number of young in a litter is seven; there may be smaller litters when food is scarce, and it is not uncommon to find litters of nine to twelve. Some female coyotes have been known to have as many as seventeen young in a litter, and one reported from Utah had nineteen.

The young are born in dens located in canyons, cut-banks, washouts or coulees, hillsides, rock bluffs, or even on level ground, as in a sagebush flat, wheatfield, stubblefield, or plowed field. Dens have been discovered under deserted homestead shacks in the desert, under grain bins, in a railroad culvert surrounded by dense grass, under a railroad bank, in a hollow log, in a thicket, and under a clump of thistles that had blown into a canyon. Coyotes do not select denning sites according to any recognized rule but many of them return to the same general locality year after year, even though the dens may be regularly dug out and the pups killed by hunters. The only thing provided in the nature of a nest is an enlarged section of the den, but some dens do not have even this. The pups lie in the dry dust on the floor.

As a rule, instead of digging new dens, coyotes will at times enlarge abandoned badger or rabbit holes or use deserted porcupine dens in rocky promontories or canyon walls. When they make a den in the earth, they start cleaning out the hole several weeks prior to whelping. They generally claw out the dirt in one direction from the mouth of the den, where it piles up into a mound, though some dens possess no such mounds. A female may clean out as many as a dozen or more holes before the young are born. Then if one den is discovered or molested, the family moves to another. In time the den becomes filthy and full of fleas, and the young are moved to one of the unused dens.

When entering the den, the coyotes nearly always go around, and not over, the mound, if one is present. Dens may have one or several entrances in use, and

several passages may branch from the main one. After the pups are born, small balls of rolled fur and hair from the mother's belly may be found in the dry dirt in the mouth of the den.

It is generally supposed that coyotes locate their dens within reach of water, but this is not necessary. Dens have been found six to twelve miles from any available water. The parents do not go to water regularly except in exceedingly warm weather, and the pups apparently subsist without any water until several months old, doubtless obtaining all liquid requirements from the mother's milk.

When leaving the den for water, the female coyote nearly always travels in a direct line, probably not deviating more than a hundred yards in a distance of several miles. The parent coyotes do not always water at the same place, however, nor do they return to their den direct from the watering place unless the den is a long distance from water.

Coyotes are particularly destructive during the denning season because of the need of extra food for both parents and their young. It is then that lambing bands of sheep on open ranges suffer the heaviest losses, for invariably in the West the whelping of coyotes and the lambing of sheep as well as the nesting of game birds occur at approximately the same time in spring. The availability of an every-ready large food supply will sometimes cause coyotes to den close by. A case in point is that of a ranch in Elbert County, Colorado. Eight coyote dens, from which fifty-three coyotes were removed in one month, surrounded the Deming Ranch, which was experiencing very severe depredations. This ranch was featuring poultry and hog raising, and the coyote pups in each of the eight dens were being fed by the adults from the poultry and young hogs ranging near and on the ranch holdings.

On making a kill of a lamb or an older sheep, both parent coyotes will at times gorge on the meat, and then return to the den and disgorge portions of the food around the entrance to the den for the pups to feed upon. As much as fifteen to twenty pounds of disgorged sheep meat have been noted near the entrance to a single coyote den. This habit of disgorging usually begins about a month after the puppies are born and the mother's milk is disappearing. At that time also pieces of meat and bones will be carried to the den. Coyotes have been known to carry a leg of lamb a distance of eight miles to their young in the den.

Dens are often found to contain two litters, one consisting of young with eyes not yet open, and the other of pups about a month old. One litter may be large and the other small, the latter commonly belonging to a young female that, apparently at a loss for a place to den, may have taken up quarters with her mother. Young females usually whelp about two weeks later than the older ones. At a den where two litters are found there is usually only one male, which would suggest polygamy.

As revealed by field studies, the female



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generally breeds when two years old, and when paired to a male they may remain together for a number of years, but as a rule the coyote does not mate for life as does the wolf.

The eyes of young coyotes open nine to fourteen days after birth. The animals mature rapidly; those born early in April generally leave the home surroundings by June, others proportionately later, and start their migratory movements, having no particular home point thereafter to return to and spending their inactive moments in areas where sufficient cover gives them necessary protection.

Coyotes that have lost a leg or a foot, mainly through negligence of good trapping technique, are referred to in the parlance of the range as "peg-legs". A recent study, made by Charles C. Sperry, of the Biological Survey, of the food of normal and of peg-leg coyotes, in the course of which 164 stomachs of peg-leg coyotes were analyzed, showed that two peg-leg coyotes ate as much livestock on an average as three normal coyotes. Apparently, as long conjectured by field men, peg-leg coyotes attack flocks and herds more readily because they find them easier prey. Often severe local depredations on stock and poultry have stopped immediately after the capture of peg-leg coyotes in farming or ranching areas.

The adult male coyote ranges in weight from twenty-one to thirty-four pounds, though one captured by a Biological Survey hunter in western Wyoming weighed approximately 75 pounds after death. The average weight of the adult female is a few pounds less than that of the male. Twelve coyotes, weighed by former President Theodore Roosevelt while on a wolf hunt in Oklahoma, averaged thirty pounds. It is not possible to make a close estimate of the weight of a live coyote by sight because of the deceptive appearance of its size due to the rather heavy loose pelt.

As with other members of the dog family, the coyote is susceptible to rabies and at times has been a potent factor in the spread of that disease. It is also a carrier of mange and tularemia. Its susceptibility to tularemia was definitely determined by the United States Public Health Service in 1926-29. As to infection from mange, many specimens of coyotes have been obtained so heavily afflicted with this loathsome skin mite as to cause wonderment that the animals could withstand the rigors of severe winter, but some evidently do.

An interesting and distinctively unique North American mammal, the coyote will be ever with us in spite of the continual warfare against it. Why is this so? The answer lies in the fact that there is no other four-footed creature in North America that adapts itself so readily to changing or new conditions and few that feed upon a greater variety of foods. The coyote can subsist upon anything from wild deer and domestic sheep to horned toads and grasshoppers; and finally, it combines all of this by being one of the wisest, most cunning, and craftiest representatives of the North American fauna.

WHO'S WHO Among the Authors in This Issue

CHARLES NEWTON ELLIOTT (*Not of Common Things*) has for many years been a contributor to AMERICAN FORESTS. Formerly in charge of historic sites and monuments in Georgia, he is now director of the Division of State Parks.



Stanley Young

STANLEY P. YOUNG (*The Coyote Marches On*) may be found these days in a quiet nook in the National Museum where he is delving into the ancient lore and modern history of American wolves, gathering material for a book in the Biological Survey's series called *North America Fauna*. Mr. Young, after receiving his Master of Science in biology, turned predatory animal hunter for the government, and in the course of years became director of all control work of the Biological Survey. Later, when J. N. Darling took over the wildlife bureau, he put Mr. Young on the trail of game law violators, at the same time placing him in charge of the government's big game preserves. Mr. Young's experiences as a hunter resulted in a book published in collaboration with Arthur Carhart—*"The Last Stand of the Pack."*

ERLE KAUFFMAN (*Conservation Over the Dam*), who has had long reportorial experience with leading newspapers and publicity agencies, is an associate editor of AMERICAN FORESTS. This is the second of a series of two articles by Mr. Kauffman on the Santee-Cooper situation which he prepared after a special trip to South Carolina for first-hand observation.

AUSTIN LESCARBOURA (*Quail Made to Order*) though trained in electrical engineering, worked at that profession only a few years, for he early developed a flare for writing and ultimately drifted into the editorial world. He has been editor of *Popular Science Monthly* and was later managing editor of *Scientific American*.

W. B. GREELEY (*A Forest Policy*), forest leader and formerly chief forester of the United States, is associated with the West Coast Lumbermen's Association.

CLARA BAILEY (*Farm Boys Plant for the Future*), after working for some time on a newspaper came to the Department of Agriculture where for the past twelve years she has been writing articles, speeches and reports, for the extension service.

THE COVER — "Fall Flight" — photograph by Carl A. Taylor.



A. C. Lescarbours

**"From the
Green Mountains
of Vermont"**

Christmas Decorations and Gift Suggestions

SPECIAL EVERGREEN BOXES

Here are boxes of sprays to delight the dwellers in the cities. They contain sprays of evergreens, assorted cones, together with sprays of berries. One of these boxes will be found most useful in the artistic decoration of your home and table at this Christmas time. Each year we find the demand for our Special Evergreen Boxes increasing.

- Box No. 1**, containing 50 assorted 12-18-in. sprays..... **\$ 2.50**
Box No. 2, containing 100 assorted 12-18-in. sprays..... **4.00**
Box No. 3, containing 300 assorted 12-18-in. sprays..... **10.00**



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The leaf of the Partridgeberry is evergreen, the berries a brilliant red. The Aiken Partridgeberry Bowl is becoming famous all over the country. The Partridgeberry Bowl requires no attention except a few drops of water once a month since the moisture is conserved by means of the tightly fitting top. We can ship these Bowls safely, anywhere.

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Are in the
Fireplace Photograph*

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- 2 Pounds of Butternuts
- 1 Aiken Partridgeberry Bowl
- 2 Half-Pound Boxes of Vermont Maple Hearts
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Here is an unusual and a most delightful gift. We know it will bring pleasure to whoever receives it, and recommend it unhesitatingly.

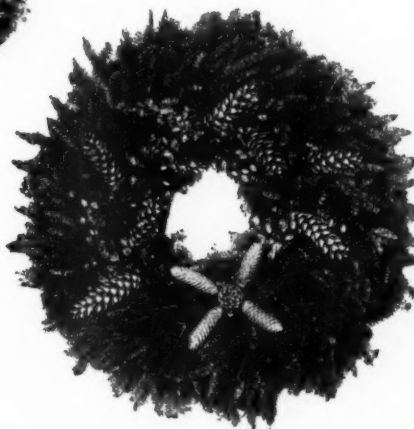
The Old Home Christmas Basket is \$3.50.

One dozen baskets, \$38.00

Smaller Basket: It is 14½ in. x 7½ in. x 9½ in., made like the above, lined with Balsam and containing:

- 1 Pound of Butternuts
- 2 Pounds of Bear Paw Popcorn
- ½ Pound of Maple Sugar Hearts

\$1.50 each, one dozen baskets, \$16.00

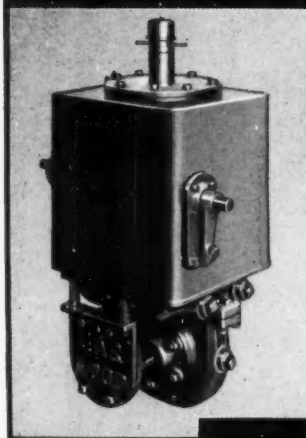


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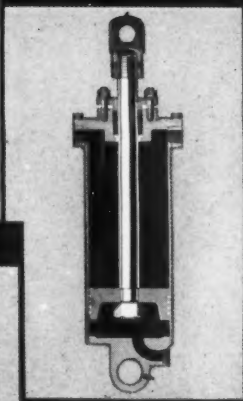
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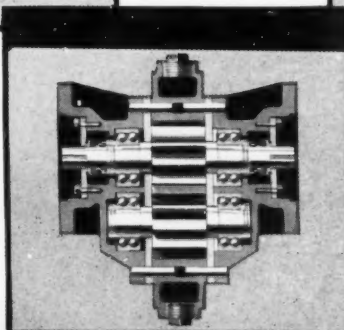
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For complete details of the perfected Gar Wood Hydraulic System, write for Bulletin R133

